THE APPALACHIAN CULTURAL LANDSCAPE ALONG THE NEW RIVER

by

E. Garnett Mellen

Thesis submitted to the Faculty of
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the Degree of:

Masters of Landscape Architecture

Approved:

Dr. Patrick Miller, Chair

Mr. David Hill

Ms. Elizabeth Gilboy

March, 1994
Blacksburg, Virginia
LD
5655
V855
1991
M455
c.2
THE APPALACHIAN CULTURAL LANDSCAPE ALONG THE NEW RIVER

by

E. Garnett Mellen

Committee Chair: Patrick Miller
Landscape Architecture

(ABSTRACT)

The regional landscape of Appalachian was a testing ground for a method to define cultural landscape. Landscape Architects and land planners can learn from the existing landscape about the aesthetics and environmental constraints of an area to design and plan in such a way as to complement and strengthen regional character.

This document describes in seven chapters the study undertaken to identify patterns in the cultural landscape along the New River. Chapter One introduces the study. Chapter Two explains the physical setting of the four physiographic provinces through which the New River flows. Chapter Three briefly gives an overview of the historical social context of the New River Corridor. Chapter Four describes the eleven sites surveyed as part of this research. The methods of the study are described in Chapter Five. The results of the research survey and statistical analysis are reported in Chapter Six. Lastly, Chapter Seven describes the current land uses within the four provinces, identifies the similarities between the landscape of the Blue Ridge and Great Valley Provinces and the dissimilarity of the Ridge and Valley and Alleghany Plateau Provinces. This chapter discusses how land planning profession could work to strengthen the Appalachian region along the New River and other regions with a unique cultural landscape.
ACKNOWLEDGEMENTS

Special thanks need to go to the professors who assisted with the preparation and production of this thesis: Patrick Miller as the Chair of my committee, David Hill for his insights and sensitivity to the Appalachian Landscape, Elizabeth Gilboy for her encouragement and keen eye for details, and Jean Spears for her guidance into the literature of Appalachian Studies. A special acknowledgement needs to be made to Will Shepherd, who died this past summer. As my major professor and favorite mentor through five years of masters work, his ecological approach significantly influenced my view of the field of land planning. He actively encouraged me to cultivate an appreciation for the Appalachian landscape and the uniqueness of the New River. He supported me, not only with employment on various research projects, but also when I dared to disagree. This research is a modest reflection of one of the many avenues of Will Shepherd’s diverse academic interests.

I would like to express gratitude to my classmates, especially Kathy Armstrong, who encouraged me to research the Appalachian Landscape. Janice McBee greatly assisted me through SAS and too many chi square comparisons. My loyal friends, Dave Hirschman and Nancy Hurrelbrink saved the day with their editorial support. Dave, my parents and sisters deserve a tremendous hail of appreciation for believing I would complete this degree.
TABLE OF CONTENTS

LIST OF TABLES ........................................................................................................................... v

LIST OF FIGURES ........................................................................................................................ vi

INTRODUCTION ........................................................................................................................... 1

PHYSICAL DESCRIPTION ............................................................................................................ 5

HISTORICAL CONTEXT ................................................................................................................ 14

STUDY BLOCKS ........................................................................................................................... 22

METHODS ..................................................................................................................................... 32

RESULTS ......................................................................................................................................... 40

DISCUSSION AND CONCLUSIONS ............................................................................................. 61

APPENDIX A .................................................................................................................................. 88

APPENDIX B .................................................................................................................................. 97

APPENDIX C .................................................................................................................................. 98

BIBLIOGRAPHY ............................................................................................................................ 99

iv
LIST OF TABLES

TABLE 1
INVENTORY VARIABLES - INDEPENDENT VARIABLES ...........................................36
TABLE 2
INVENTORY VARIABLES - SECONDARY VARIABLES ............................................37
TABLE 3
FREQUENCY OF DWELLINGS BY PROVINCE .....................................................41
TABLE 4
CHI SQUARE TEST SUMMARY TABLE BY PROVINCE .......................................41
TABLE 5
FREQUENCY OF MATCHED SOLAR ASPECTS OF DWELLINGS AND LANDFORMS ....44
TABLE 6
FREQUENCY OF DWELLINGS BY AGE ..............................................................49
TABLE 7
CHI SQUARE TEST SUMMARY TABLE BY AGE .............................................49
TABLE 8
FREQUENCY OF DWELLINGS BY APPARENT REAL ESTATE VALUE ..................51
TABLE 9
CHI SQUARE TEST SUMMARY TABLE BY APPARENT REAL ESTATE VALUE ....52
TABLE 10
FREQUENCY OF DWELLINGS BY ORIGIN OF BUILDER ...................................55
TABLE 11
CHI SQUARE TEST SUMMARY TABLE OF ORIGIN OF BUILDER .....................55
LIST OF FIGURES

FIGURE 1
NEW RIVER CORRIDOR MAP.................................................................4

FIGURE 2
BLUE RIDGE PROVINCE .................................................................7

FIGURE 3
GREAT VALLEY PROVINCE...............................................................9

FIGURE 4
RIDGE AND VALLEY PROVINCE.......................................................11

FIGURE 5
ALLEGHANY PLATEAU PROVINCE...................................................13

FIGURE 6
EXAMPLE OF INVENTORY FIELD MAP.............................................38

FIGURE 7
EXAMPLE OF INVENTORY FIELD MAP.............................................39

FIGURE 8
DWELLING SITES TEND TO BE SURROUNDED BY ORNAMENTAL PLANTINGS...73

FIGURE 9
ORNAMENTAL SHRUBS, SPRING HOUSE, ROOT CELLAR AND TOOL SHED
SURROUNDING TWO-HOUSE FAMILY CLUSTER.....................................74

FIGURE 10
LATE 1880’S FARM HOUSE NEXT TO A SPRING IN A PROTECTED LOCATION
WITHOUT A VIEW OF THE RIVER.......................................................75

FIGURE 11
GUMP WILLIS’S FARM HOUSE AND HAND-DUG WELL........................76

FIGURE 12
EARLY 1900’S HOME PLACE............................................................77

FIGURE 13
1800’S DOG TROT LOG CABIN........................................................78
INTRODUCTION

Garnett Pearman, a Carroll County water witch, sited his extended family cluster on branches of an underground stream. This cluster of dwellings takes advantage of the land’s opportunities and pays heed to its environmental constraints. Landscape architects and land planners can learn from local land stewards like Pearman, and from a study of the distinctive cultural landscapes they and their ancestors helped to create. An intimate knowledge of cultural landscapes will help design and planning professionals to complement the traditional aesthetics of a region, and to learn from generations of wisdom about the environmental constraints inherent in the cultural landscape.

In a 1993 publication of Georgia Landscape, Cari Goetcheus asks "that all trained designers look to the concept of the ordinary, not just the extraordinary, the informal as well as the formal". Goetcheus expresses the sentiments that led to study described in this document of the Appalachian cultural landscape along the New River. Cultural landscapes, the ordinary places with an undesigned vernacular quality, can tell us much about the people who created them in response to the land’s physical constraints. John Stilgoe refers to undesigned landscapes as "landscape jams", and has encouraged the appreciation of attractive ordinary places. Peirce Lewis writes in his essay "Axioms for Reading the Landscape" that landscapes are cues to culture and cultural change, to regional differences, and to the relationship between local cultures and their physical environments.

Almost all landscapes are cultural. Since the beginning of the species, humans have altered land for their needs and desires, leaving very few places on earth untouched. But the land has played its part in shaping those needs and desires: not all cultural landscapes look alike because the factors shaping them interact differently in different places. Though the southern United States is located at approximately the same latitude as northern India; terrain, climate, religion, economics, and social structure have shaped South Carolina, New Mexico and southern California to be quite distinct from the north India’s provinces of Kashmir, Himachal Pradesh, and Uttar
Pradesh. There is a relationship between culture and nature that shapes the look of the land. The Virginia coast, piedmont and mountains have a physical structure and economic position that are dissimilar. Virginia’s Golden Crescent — the coast and piedmont — are flat to rolling land with relatively fertile soil that is known to have a thriving economy and increasing population. The Virginia mountains have less gentle to moderately sloped land, a less productive economy, and a declining population base. These three morphologic units of Virginia look quite different from one another. How much have the land and the social structure of these areas shaped one another? The Blue Ridge Mountains of North Carolina and Virginia have a different feel and appearance than the Shenandoah Valley, the long linear Ridge and Valley Mountains, or the West Virginia Mountains. Landscapes result from the interaction of geographical, ecological, and social circumstances over long expanses of time, differing according to those factors.

The processes that shape cultural landscapes may be categorized as physical and cultural. Physical factors — climate, geology, soils, and vegetation — frame the potential of a landscape. Cultural processes — the actions of people, farming, building, industry, etc. — respond to the landscape’s physical qualities and in turn help shape its future potential. Within a landscape’s physical limits, a culture develops and manages an area according to its values and beliefs. Physical and cultural processes influence one another: the landscape reflects the culture and culture reflects landscape. The mountains of Appalachia embody a cultural landscape that is the testing ground of this thesis. The New River Corridor is the study transect within this cultural landscape. The New River is the one entity which because it flows "backwards", north instead of south, cuts clear across the Appalachian landscape from North Carolina to West Virginia.

Besides being the study transect of this research, the landscape surrounding the New River merits special study. It is fragile. Social and cultural change is occurring rapidly in the New River Corridor, which in this document have been defined as the area directly adjacent to the New River in the counties through which the river flows: Ashe and Alleghany in North Carolina; Grayson, Carroll, Wythe, Pulaski, Montgomery, and Giles in Virginia; and Mercer, Monroe, Summers, Raleigh, and Fayette in West Virginia. The river is scenic and offers advantages for various land uses, such as residential development, farming, and industry. This research survey
of the land’s current status will later be a valuable tool for planners, designers and historians.

This study looks for patterns in the Appalachian landscape along the New River. Lewis has suggested what type of elements should be studied, remarking that "ordinary run-of-the-the-mill things that humans have created and put upon the earth provide strong evidence of the kind of people we are, and were, and are in the process of becoming". Of all the "ordinary run-of-the-mill things" to study within the cultural landscape, rural residential dwellings were chosen, because in these, people invest time, money, and often love. They fit the definition of quite ordinary things, and they are cultural symbols. To look for trends in the placement of dwellings this research questions: Are there similarities or differences between the four physiographic provinces through which the New River flows? Does the age of a dwelling affect its placement? Did the builders’ place of origin affect where they located their dwellings? Does apparent real estate value influence where people live?

This document is laid out in seven chapters. After the Introduction, Chapter Two explains the physical setting of the four physiographic provinces through which the New River flows. Chapter Three offers a brief overview of the historical social context and current land uses of the New River Corridor. Chapter Four describes the eleven sites surveyed as part of this research. The methods of the study are described in Chapter Five. The results of the survey and statistical analysis are reported in Chapter Six. Lastly, Chapter Seven draws conclusions about the traditional cultural landscape in Appalachian Mountains and how the landscape is changing. The chapter suggests that landscape architects and land planners can learn from the existing landscape and work to promote and strengthen the unique character of the Appalachian regional.
PHYSICAL DESCRIPTION

FOUR DISTINCT PHYSIOGRAPHIC PROVINCES

Physiographic provinces are relatively large terrain divisions that have undergone similar geomorphological processes through time. Geologic structure, elevation, climate, soils, vegetation, etc. contribute to the distinctiveness of a physiographic province. One question underlying this thesis' research concerns the extent to which the cultural landscapes have been shaped in response to the different physiographic provinces. Landscapes affected the construction and placement of dwellings and communities differently. People generally reside and develop a place where they can stay warm, dry and safe; where there is adequate water, and food, and the ability to sustain a livelihood. To appreciate different cultural landscapes, it is helpful to understand what makes a landscapes' physical setting unique.

The four physiographic provinces through which the New River passes are described in this chapter as the river flows from south to north: the Blue Ridge, the Great Valley, the Ridge and Valley, and the Alleghany Plateau. The descriptions are based primarily on the areas of each province passed through in route to the study blocks.

BLUE RIDGE PROVINCE

The climax forest tends to be mixed mesophytic and oak-chestnut forests. Several species of trees share dominance in the mixed mesophytic forests, notably beech, tulip poplar, basswood, sugar maple, sweet buckeye, chestnut, red and white oak, and hemlock. The oak-chestnut forests were formerly dominated by oak and chestnut, and presently by white oak, hickory, and pine. At higher elevations the oak-chestnut forest is replaced by sugar maple, yellow birch, and buckeye (Hoffman, 1979).
The Blue Ridge Physiographic Province is a long narrow mountainous area west of the Piedmont and east of the Ridge and Valley. It runs southwest to northeast and extends from south-central Pennsylvania through Maryland, Virginia, and western North Carolina into North Georgia (Dietrich, 1990). The province consists of the Blue Ridge Mountain Range as well as its outlying mountains and foothills, and is composed predominantly of folded and faulted igneous and metamorphic rocks such as granite, gneiss, schist, and mica schist, with some greenstone along the top of high ridges. An old plateau deeply cut by streams, this belt of resistant rock has been repeatedly raised and continuously eroded (Fenneman, 1938). The province has higher peaks than any other in the Appalachian region. Close to the New River, but not in the New River Corridor, Mount Rogers reaches 5729 feet. In the New River Corridor, the highest elevation in the province is 3500 feet at Bald Knob in Alleghany County, North Carolina. The river elevation of the South Fork near the first block of inventory sites is 2500 feet and the New River leaves the province at an elevation of 2040 feet.

Approximately one third of the New River's entire length cuts on a diagonal through an especially wide expanse of the Blue Ridge Province as it travels from its North Carolina South Fork headwaters into southern Virginia. In the central province area, a high table land flanked to the east and west by high rounded ridges, the South Fork forms and flows along the Alleghany-Ashe County line, then converges with the North Fork to form the main stem of the New River. The Chestnut Hill and Iron Mountain study blocks are within the high table lands which Wingo characterizes as "deeply cut by streams and broken mountains and high hills which have rounded tops and steep slopes". The river leaves the Blue Ridge Province near Ivanhoe, Virginia at the Carroll-Wythe County line. The third Blue Ridge inventory site, Fairview and Farmers Mountain, is south of Ivanhoe. It lies within the Blue Ridge mountains, often referred to as the Unaka Mountains, which flank the province's western edge.
FIGURE 2
BLUE RIDGE PROVINCE
GREAT VALLEY PROVINCE

The dominant climax forest of the Great Valley is an Oak-Chestnut Forest (Hoffman, 1979). (See description in the Blue Ridge section.)

The Great Valley is often identified as a part of the Ridge and Valley Province, because the same layers of sedimentary rock were folded and faulted and then eroded to form both provinces. However, the rock of the Great Valley was not as tightly compressed as that of the Ridge and Valley, hence the former appears as a series of long, high ripples. The predominant sedimentary rock is limestone, shale, sandstone, and quartzite. The feature that most clearly differentiates the Great Valley from the Ridge and Valley is the absence of distinct linear drainage valleys.

Within the Great Valley different rates of erosion between limestone and the more resistant rocks have precipitated the development of topography that is gently rolling to steeply rolling. In some places streams have cut deeply into the limestone, leaving large areas of steep and hilly relief, but the relief is not as well developed as the linear valleys and mountains of the Ridge and Valley, nor the two other provinces of the study (Harvill, 1977). In general, gentler slopes are found in coves, on upland terraces, along the New River, and in drainageways feeding into the New River. Steep slopes are found on the sides of drainage, and on the sideslopes and hillslopes of small mountains. The Great Valley has moderately well developed bottomland along the entire river. The highest elevation of the Great Valley in the New River Corridor is 3107 feet at Crocket Mountain. The river enters the province at an elevation of 2040 feet and leaves the province at 1660 feet.

The Great Valley stretches from Chattanooga, Tennessee to the Shenandoah Valley of Virginia and Pennsylvania, but the New River flows in it for only about one eighth of its entire length. The river enters the Province at the Carroll-Wythe county line and travels through Pulaski and Montgomery Counties, dammed to form Claytor Lake in the hilly Dublin-Wytheville area. This area, is slightly more rolling than the rolling limestone valley best characterized by the northern part of the province, the Shenandoah Valley.
FIGURE 3
GREAT VALLEY PROVINCE
RIDGE AND VALLEY PROVINCE

The climax forest of the province is a mixed mesophytic forest (Hoffman, 1979). (See description in the Blue Ridge section.)

The Ridge and Valley Province is squeezed between the Blue Ridge and the Alleghany Plateau. It is a belt of folded and faulted rock, which varies in width and runs the length of the Appalachian Mountain Chain, featuring an assemblage of valley floors surmounted by long, narrow, even-topped mountain ridges. Either of these elements can dominate: the mountains might be spaced with wide valleys or closely folded with nearly absent lowlands. The ridges tend to be formed from hard resistant rock, usually sandstone, and the valleys from weaker rock, predominantly limestone and shale, that has eroded (Fenneman, 1938). Interbedded with the sandstone, limestone, and shale are conglomerate and coal, except in the areas adjacent to the New River.

The New River winds one eighth of its length through the Virginia Ridge and Valley Province, entering at McCoy Falls at an elevation of 1660 feet and exiting at the Narrows at an elevation of 1520 feet. It slices across the most tightly folded ridges of the entire province between McCoy and Narrows, Virginia in Montgomery, Pulaski and Giles Counties. The area ranges from rolling to very steep. The New River’s tributary streams in this province flow either within a major valley, or down the valley sides, nearly perpendicular to the valley trends, a pattern called trellis drainage (Dietrick, 1990). Just a few hundred feet beyond the one-and-a-half-mile wide New River Corridor, Peters Mountain rises to 3359 feet.

As the province was explored, it was noticed that tributary valleys differ according to their underlying rock. The inherent qualities of different bedrock is reflected in the place names in the region. Shale valleys, such as Poverty Creek in Montgomery County, are narrow, contain poor soil, and hence are generally sparsely populated with often poorly maintained dwellings. Carbonate valleys, such as Rich Creek and Rich Mountain in Giles County, are wider and have better soil, and their dwellings tend to be well kept and made of higher quality materials.
FIGURE 4
RIDGE AND VALLEY PROVINCE
ALLEGHANY PLATEAU

The climax forest of the Alleghany Plateau tends to be a mixed mesophytic forest (Hoffman, 1979). (See the description in the Blue Ridge section.)

The Alleghany Plateau Province is northwest of the Ridge and Valley and stretches south to Tennessee and north to meet the Cumberland Plateau. The province is underlain by sections of horizontal, sedimentary rock, all in varying degrees of dissection or degradation. These sections differ not only in the extent of dissection, but also in their altitude and in the character of their underlying rock (Fenneman, 1938). The rock is generally shales, limestones, and sandstones with deposits of conglomerate and coal in some areas. The dissection of the plateau is such that the area has the appearance of being highly mountainous (Dietrick, 1990). The drainage pattern of the Alleghany Plateau is considered dendritic.

The New River stretches two thirds its length through this province, from the Narrows of the New River in Virginia to Fayette County, West Virginia, where it converges with the Gauley River at the Gauley Bridge in Fayette County, West Virginia to form the Kanawha River. The top of the Plateau is separated by strips of deeply dissected stream beds (Fenneman, 1938). Higher forested mountains occasionally rise above the plateau. The highest elevations of the plateau in the New River area reach over 2700 feet in the Monroe-Mercer-Summers area. Near Fayetteville the plateau top is just over 1800 at its highest elevations; 1000 feet below the New River forms the Kanawha River, over 700 feet below the elevation at which it enters the Alleghany Plateau.

The New River flows through two distinct minor physical units: the moderately and the highly dissected Alleghany Plateau. The moderately dissected New River counties, Giles, Monroe, Mercer, and Summers are deeply cut by streams, but not to the extent of the highly dissected counties, Raleigh and Fayette. The moderately dissected plateau stretches from the slightly folded Alleghany Front adjacent to the Ridge and Valley Province to the beginning of the New River Gorge. The moderately dissected plateau has areas of gently sloping land on the top and
benches of the plateau, and at the mouths of tributaries. The highly dissected area's excessive relief, deeply cut drainage, and wide range of elevation makes it extremely steep with little flatland except along the narrow plateau top, on the shallow plateau benches, and in the V-shaped valley bottoms.

FIGURE 5
ALLEGHANY PLATEAU PROVINCE
HISTORICAL CONTEXT

INTRODUCTION

The physical description above describes the nature of each province through which the New River flows. This chapter will place the cultural landscapes in a social context. Europeans first migrated to the New River region for a variety of reasons: the earliest groups came to hunt and trap furs, and their reports of the fertile valleys lured others to farm. Later groups mined coal and lead, harvested timber, built textile mills, and developed the area's recreational possibilities. All of these settlers both adapted to the landscape and adapted it to suit their needs, whether building roads or vying for prime farmland. Some families remained in the area for generations continuing to farm or mine, while others pursued different livelihoods or left the area entirely. Over time, the population's endeavors have created the cultural landscapes explored in this research. This chapter describes the development of the New River Region from the mid-1700's to the present; the dwellings surveyed were constructed from 1800 to the present.

The circumstances along the New River through history cannot be understood separately from those in the greater Appalachian Region, because the New River Valley Corridor is an integral part of the Southern Highlands. Though state boundaries have changed throughout history, when speaking of North Carolina, Virginia, and West Virginia, this document is referring to the land that falls within the present day political boundaries of these three states. The social history of the region state by state will be discussed. Conveniently, the state boundaries roughly break along the historical waves of settlement and swells of industry and commerce advancement. See Figure 5 - New River Corridor Map for a map of the study area.

Because this thesis' primary research questions concern the patterns within the physiographic provinces through which the New River flows, readers need to note the geographical relationship between the states and the physiographic provinces. The North Carolina New River area is entirely in the Blue Ridge. The Virginia New River area moves through the Blue Ridge into the Great Valley and on to the Ridge and Valley. The West Virginia New River is located in the
Alleghany Plateau. Current land use and land patterns will be discussed by physiographic province.

NATIVE AMERICANS

The first Europeans to reach the Appalachian Mountains and New River were explorers and fur trappers. Their reports indicate that Native Americans lived along the New River, though not in large numbers. An explorer named John Peter Sally, who journeyed the entire length of the New River, recorded in his diary burial sites, camp grounds, and cultivated cornfields (Opie, 1983). Historians now believe that Native Americans, primarily the Sioux and the Iroquois, used the New River Basin as a hunting ground and as temporary settlement (Bennett, 1984).

EARLY EUROPEAN SETTLEMENT

Although the New River was first explored in 1671 by an English expedition lead by Araham Wood, the Appalachian Mountains presented a formidable barrier for Europeans’ westward migration until the middle of the eighteenth century and after the Revolutionary War period. Settlement came in waves as early Americans moved into the mountains from different directions at different times. Accessibility, politics, and intent of the pioneers influenced their movements.

North Carolina

Blue Ridge

The settlement of the New River in North Carolina was restricted by high mountains, rugged terrain and politics. From McDowell County to the North Carolina-Virginia line, the Blue Ridge is almost an impenetrable barrier of high mountains with no easily accessible gaps or passes.

Ownership of land along the New River in North Carolina was restricted until after the Revolutionary War. Lord Granville, an Englishman, held a grant to the land in the New River
area, and others were not allowed to claim titles. After Granville’s death, the British-appointed Governors of North Carolina further discouraged settlement in the New River area, prohibiting legal ownership of land beyond the rim of the North Carolina Blue Ridge until the Revolutionary War, when the state of North Carolina assumed title to all vacant lands (Bennett, 1984).

After the War, as settlers flowed into the North Carolina area, they came to the New River from two directions. The headwaters of the New River along the South and North Forks were settled by people moving north up the Upper Catawba River by a well established route from the headwaters of the Johns River in Burke County over to the head waters of the New River. The upper section of the New River in North Carolina was settled by Virginians moving south down the Great Valley along the New River (Bennett, 1984).

Virginia

The Great Valley

The first travelers to the Appalachians were the people who hunted and trapped game for the pelts. They paved the way for settlers hungry for farm land. The hunters brought back stories of the flat, fertile lands over the mountains. The Great Valley was the location of the first settlements of Appalachia and the New River Valley area. The New River crosses a narrow section of the Great Valley in Virginia at Radford, Virginia.

Interpreting material folk culture, Henry Glassie claims that "during the middle two quarters of the eighteenth century ... beyond the Blue Ridge, Pennsylvanians of mostly German and Scotch-Irish stock were settling the Valley of Virginia," moving down the valley from their state. William Bennett agrees with Glassie that the first Appalachian settlement of any note occurred in central Virginia’s Great Valley in the mid-1700’s, but contradicts Glassie’s account of who these settlers were and from whence they came. Bennett claims that the lower, less rugged gaps in the Virginia Blue Ridge Mountains and the alluring, gentle terrain of the Great Valley with its sweet, limestone soils first pulled Englishmen over the Virginia Mountains. He says that some of the more accessible routes across the Blue Ridge include the Virginia gaps, such as the gap
west of Black Water Fort, the gap at the head of Goose Creek used by the Yadkins Road, and the Yadkins River where it meets the Wilderness Trail (Bennett, 1984).

Regardless of the initial settlers' route and origins, Glassie and Bennett agree that they moved down the Great Valley toward the Tennessee Cumberland Gap and lands further west. Settlers followed the Shenandoah River, to the James River, to the Roanoke River, and other smaller rivers paralleling valley to the west to come to the New River. Nevin Fenneman claims that the early waves of settlement moving down the Great Valley were halted temporarily at the gorge on the Roanoke River at Pedlars Hills (Fenneman, 1938).

Into the Mountains - The Blue Ridge, Ridge and Valley and Alleghany Plateau

Some of the early settlers chose to move, not down the Great Valley and west over the Cumberland Gap, but up into the mountains of the Blue Ridge, Ridge and Valley, and Alleghany Plateau. Historians have speculated as to why settlers who wanted to farm would have moved from the Great Valley which offered substantial flatland, into the steeper mountain areas, the majority of which were either too steep for plowing or prone to erosion. Why did these people not just keep moving west to look for better land instead of settling for small parcels of level ground? Some authors claim that early settlers were drawn to areas that reminded them of their motherland: the Scotch-Irish favored the rugged land of the upper hollows and ridges, while the Germans preferred land with black walnut and rich limestone soils, so they settled at the mouths of hollows and coves (Wilhelm, 1975). Some historians assert that the Scotch-Irish were pushed into the more rugged mountain terrain because the hardworking Germans had already laid claim to the best flat land. Alan Hauser poetically explains that settlers did not continue to move west because the "beauty of the region, along with the nature of farming at the time, were such that many settlers became convinced that they could carve out a good life for themselves and for their families from the wilderness." Settlers only needed small parcels of land to cultivate intensively in order to support a family (Hauser, 1987).
The Virginia mountains along the New River have remained largely dependent on farming, though other industries such as timber operations, a few small textile mills, and limited coal mining in the Ridge and Valley area of Virginia, which began to develop in the late 1700’s. The discovery of iron ore and lead brought mining, miners and the railroad to Carroll and Wythe Counties. (A remnant of the lead industry, the Shot Tower standing above the New River near Austinville, was designated a National Historic Mechanical Engineering Landmark in 1981.) The development of these industries gave the New River Great Valley a large boost in population. Textile mills built at the turn of the century at Mouth of Wilson and Fries, brought more industry and commerce to the Great Valley. With developing industries, the population became less and less dependent on farming. Galax, on Chestnut Creek, a tributary of New River, became a thriving trade center for the region because of its central location on the railroad line.

Until the 1850’s the Virginia New River and West Virginia Ridge Mountains west of the Great Valley (the Ridge and Valley and Alleghany Plateau Provinces) were sparsely populated with agricultural settlements. Though farming continued to be a significant activity for most settlers, other activities began to pull people to the western Virginia and West Virginia New River area. In the mid-1800’s, visiting resort springs (Pulaski Alum, Yellow Sulphur, Grey Sulphur, Eggleston, Red Sulpher, Salt Sulpher, Sweet, Sweet Chalybeate, White Sulphur, and others) became a popular summer holiday get away from the heat of the coast and piedmont, encouraging the development of regional transportation.

West Virginia

Alleghany Plateau

As was the pattern with most early American westward migration, fur traders were the first to enter the West Virginia New River area in the 1750’s. The rugged Alleghany Plateau was a more formidable challenge to pioneers than the other physiographic provinces through which the New River flows. The steep terrain, especially further north in the New River Gorge area where the plateau is sharply dissected and the relief excessive, travel was difficult.
After establishing three forts in the 1770's between the Greenbrier River and Crumps Bottom on New River, settlers looking to farm began entering and passing through the West Virginia New River area of Monroe, Summers and Mercer. Most of these frontier settlers came to the West Virginia New River Valley from the southeast following the Virginia New River. John Opie writes that some early settlers also came up the Ohio River into New River Valley (Opie, 1983).

The building of roads called turnpikes in the 1780's especially speeded the flow of people into the West Virginia New River Region. The main road leading into the New River Gorge area, the Kanawha Turnpike, was completed in 1848 and connected Pearisburg and the Kanawha Falls via Peterstown, Red Sulpher Springs, Beckley, Mt. Hope and Fayetteville (Gillenwater, 1983).

In 1873 the first rail line was extended into the New River Gorge and the first shipments of coal brought miners. The population of existing towns rose and coal camps were built along the New River and its tributaries. The population of the region was largely composed of people of western European heritage until the mines brought African-Americans, and both western and eastern European outsiders. The population in Mercer, Raleigh and Fayette steadily grew until World War II (Opie, 1983). As the New River Gorge coal industry grew, Hinton in Summers County at the beginning of the New River Gorge became an important regional market center.

Mercer, Raleigh and Fayette Counties have been an exception to the pattern of predominantly agricultural settlements in the New River Valley. Economically, they have depended primarily on logging and coal production, but in the last several decades they too have witnessed change in their traditional economy. Since 1900, mining has declined 62%, between 1930 and 1970 agriculture declined, and between 1950 and 1970 it declined by 80%. Service and wholesale retail employment has risen between 1950 and 1970 (Gillenwater, 1983). Since World War II, the population and the number of jobs has rapidly declined with the automation of mining, the loss of part of the coal market to petroleum and natural gas, the decline of Appalachian agriculture, and the introduction of the chain saw in timbering (Gillenwater, 1983).
ECONOMICS AFFECT CULTURAL LANDSCAPES

Change generally happens gradually. Agriculture continues to play a significant role for Appalachia and the New River Valley, but it no longer serves as the area's economic base. Even the predominantly coal producing counties, Mercer, Raleigh, and Fayette, have seen economic and landscape changes in the last several decades.

The Appalachian farms from the early settlement period well into the twentieth century were not cash-producing enterprises, but sustainable units enabling each family to feed its members. Hauser describes the land as well-suited to the early farming lifestyle of Appalachia and the New River Valley Basin (Hauser, 1987). Only a few acres of relatively level land could raise enough grain crops and vegetables to feed a good sized family. Steep land was used for apple, peach and cherry orchards, and pasture was used for cattle. The forests were used to hunt game, gather wild plants, and harvest wood for fuel. Farmers produced most of what they needed, bartered for services and goods, and occasionally sold excess produce at the nearest market center to earn a little cash. In one interview, a Monroe County sheep farmer in his early fifties remembered how, when he was a young boy, his father bartered farm produce for goods and services.

Appalachia maintained sustainable farms and communities well into the beginning of this century because of its physical and social isolation from the larger society of the United States, but the traditional farming practices began to deteriorate. Hauser suggests one of the first changes that pushed agriculture toward its decline was increased population (Hauser, 1987). Where could the children of farmers farm? Farmers subdivided their land for their children, or the children moved up the slope to more marginal lands. Several of the sites surveyed tended to have an old homeplace with the children's newer homes built nearby, often uphill.

As Appalachia became less isolated -- due first to the influence of the coal, lead, iron and textile industries, and later to the advent of radios, modern roads, television, and automobiles -- so did social customs and traditional economy. Appalachian people sought luxuries, and basic medical care, that most of the rest of the United States was enjoying. Because Appalachian farming did
not earn them enough to participate in the cash economy, people began to leave the area, and the population fell. The families who stayed in the region often became part-time farmers, earning their primary income from jobs elsewhere (Hauser 1987).

The changing economics of Appalachia has had a direct impact on the look of the land. As the area has moved away from a primarily agricultural base, less land is farmed and there is more forest. While farms tend to have the homeplace at the center of the land holding surrounded by open fields and wooded hillsides, non-agricultural homes tend to not be placed at the fertile center of a parcel. Not only are dwellings sited differently, but new modes of transportation also mark the landscape: extracting industries and textile mills mean railroads, stacks, towers, tresses, stripped mountain tops, and dams. Even the "soft" industry of recreation has affected the older established agricultural and coal producing landscape patterns. Recreation industries facilities open up stream side fields for boats and campers rather than crops and cattle, and the dwellings of people who come to the region for recreational purposes are placed differently than the older farmsteads and coal camps. People seeking recreation typically value wilderness and privacy, hence their homes and businesses are placed further apart than those of, say, miners. To use geographer William Hoskins's phrase, "reading the traces on the land" along the New River can give one a sense of the social and economic changes which have occurred in the region (Hoskins, 1977).
**STUDY BLOCKS**

**BLUE RIDGE**

Ninety dwellings were inventoried in the Blue Ridge Province: Chestnut Hill, Iron Ridge, and Fairview and Farmers Mountain study blocks. Chestnut Hill is located in Ashe County, North Carolina. Both Iron Ridge, and Fairview and Farmers Mountain are located in Carroll County, Virginia. The Blue Ridge Province counties through which the river flows include: Allegheny, Ashe, Grayson and Carroll. Ashe and Carroll have published soil surveys and were included in this research.

**Chestnut Hill**

Approximate Elevation Range 2900 - 2480 feet

On March 19, 1992, it was a cool day with intermittent light showers. On this day dwellings were surveyed along routes 1560, 1549, 1559, and 1552.

The block lays beside the wild and scenic section of the South Fork between the community of Chestnut Hill and the confluence the North and South Fork Rivers where the New River is formed. Dwellings were surveyed along three roads running up moderately incised tributaries, and along a road that paralleled the New River. The character of the land is rolling. The New River has well developed bottom land in this area. Tributaries are cut deeply.

The dwellings in this area were well maintained and many built within the last ten years. Only at Chestnut Hill was a dwelling surveyed that had been relocated. A family from outside the local area moved a 1800’s log cabin from another location in Ashe County to the river’s edge.
Iron Ridge
Approximate elevation range 2630 - 2100 feet

In Carroll County on April 29, 1992 the following routes were surveyed: 721, 720, and 793. The day was mild and sunny.

The Iron Ridge block is between Chestnut Creek and the town of Fries. This area is deeply incised by drainages. From Iron Ridge to Dixion Branch was steep. On the west, but not on the east, side of the river, there was a moderately wide bottom used for agriculture and dwellings. On the east river bank on the narrow bottom and gentle footslope there were several dwellings which looked to be a family cluster. There was an older house in the middle and newer dwellings to each side advancing up the hill.

Fairview and Farmers Mountain
Approximate elevation range 3080 - 1950 feet

In Carroll County, Virginia, on March 8, 1992, the Fairview and Farmers Mountain inventory block was surveyed. The day was mild and partly sunny. The following routes were travelled and surveyed: 94, 601, 658, and 602. Thirty dwellings were surveyed.

In this study block, between Ivanhoe and Fries Junction, Farmers Ridge and Poplar Mountain, part of the Unaka formation, flank the New River. This block has some of the greatest elevations changes seen in the Blue Ridge section of the study. The dwellings surveyed followed creeks and low, rounded, military ridges. The military ridges, shoot off the higher linear mountains, and sharply contrasted the steep slopes of the mountains. The military ridges resembled some of the wider plateau benches of the Alleghany Plateau.

This surveyed block, which is located on a military ridge, new residential structures and second homes of apparent moderate to high real estate value skirt the edge of the forest. Older dwellings tend to be sited without a view of the river on uplands close to a reliable water source. On an
upland ridge a "water witch" was surveyed. This retired well digger had sited all his children's houses (1940's to 1960's) on a flat-topped ridge, surrounding his older 1930's home, following branches of an underground stream. Garnett Pearman, the "water witch" has worked in the landscape all his life. Builders who have intimate knowledge of the local landscape choose sites with physical opportunities and fewer environmental constraints such as, siting homes on fertile, stable land with a good water supply and no chance of flooded or slipping soils. This trend is also seen at the Whitethorne house, discussed in the Ridge and Valley section.

**GREAT VALLEY**

Seventy three dwellings at two inventoried study blocks were surveyed in the Great Valley: the Whitethorne block located in the rolling limestone valley, and the Ingles Mountain and Claytor Lake block a few miles north of the Claytor Lake dam in the hilly area. Carroll, Pulaski, and Montgomery have published soil surveys and are included in this research.

**Ingles Mountain and Claytor Lake**
Approximate elevation range 2220 - 1730 feet

The Ingles Mountain and Claytor Lake block lays in Pulaski and Montgomery Counties. While surveying this block the following routes were travelled: 626, 1310, 732, 799, 611, 232, 605, and 690; and surveyed all dwellings. Many occupants of the 37 dwellings surveyed were not home on the rainy January 7, 1992 on which this area was surveyed.

The Ingles Mountain and Claytor Lake block was surveyed on both sides of the New River. The block lays south of Fairlawn and the City of Radford, and stretches to the rolling hills at the northern end of Claytor Lake. The western part of the block lays south of Fairlawn and across the river from the City of Radford and stretches from outside of New River Community, past Hazel Hollow, up a high remanent terrace and to Claytor Lake's northwest corner. The east side moves around the base of Ingles Mountain, across the Little River. Interstate 81 cuts the block
and crosses the river running east and west. The landscape located on the west side of the river in view of the interstate looks industrial, with scattered, newer dwellings and commercial buildings on steep eroding slopes overlooking the highway. Just out of view of the interstate, the dwellings were better kept and constructed with higher quality materials. The bottomlands in this area are relatively narrow compared to other parts of the Great Valley.

Whitethorne
Approximate Elevation Range 2000 - 1670 feet

Dwellings were surveyed at the Whitethorne block on a cold March 1, 1993. The surveyed routes were: 623, and 1740.

Across from the Radford Army Ammunition Plant, the Whitethorne block is a karst area overlaid with residual terrace deposits. This block lays at a pronounced oxbow bend of the river. The study block winds from the river banks at the Whitethorne House and Virginia Tech Agricultural Farm’s lands, across the mouth of Toms Creek, up the south side of Toms Creek’s valley toward Long Shop, and up along the river ridge towards the Prices Fork Community. The Whitethorne House is the oldest dwelling in the area, probably predating the railroad tracks that lay between it and the river. There are four dwellings owned by Norfolk and Southern. One is abandoned, two are occupied by retired railroad families, and one is an on duty house for railroad engineers. The placement of these dwellings and their site arrangement stands out as different than the other dwellings of this block. They are placed within 50 feet of the tracks, oriented to the tracks, and access to these dwellings is by travelling for several hundred feet along the track. Other dwellings in this study block were family type clusters, with yards, gardens, driveways coming straight off the closest main road, and oriented to the road. The dwellings along the river ridge toward Prices Fork above the upland terrace deposits are generally placed on slopes that are quite steep. Below the ridge, on a narrow bottomland, at Litton Bottom, there is a cluster of newer dwellings of moderate to low real estate value, several of which are trailers. The road to the area is private, and only with permission, was the area accessed. These dwellings were oriented toward the river, and had the feeling of being holiday camps as did the surveyed block in Raleigh.
County along the river.

The western part of the block lays south of Fairlawn and across the river from the City of Radford and stretches from outside of New River Community, past Hazel Hollow, up a high remanent terrace and to Claytor Lake's northwest corner. The block on the east side of the river starts just inside the southern boarder of Radford corporate limits, moves around the end of Ingles Mountain, across the mouth of the Little River, to the steeply rolling hills at Claytor Lake northern reaches. Interstate 81 cuts the block and crosses the river running east and west. The landscape located on the west side of the river in view of the interstate looks like an industrial wasteland, with a scattered, newer dwellings and commercial buildings on steep eroding slopes overlooking the highway. Just out of view of the interstate, the dwellings were better kept and of higher quality materials. The bottom land in this area is relatively narrow compared to other parts of the Great Valley, but are more extensive than the bottom land found in the Ridge and Valley Province.

In both blocks of the Great Valley, the Montgomery County Soil Survey identified upland terraces which are remanent, bottomland, river gravels deposited before the river cut down to its present elevation. The placement of dwellings on these terraces is similar to the Alleghany Plateau tops with dwellings placed in normal observer position, and the older dwellings set back from the ridge crest's rim with no view of the river. On a high terraces, one nineteenth-century, family cluster, Ingles-family cluster surrounded by scattered out dwellings was reminiscent of the Pearman Family cluster on the low Blue Ridge military ridge at the Fairview and Farmers Mountain block and family clusters seen in West Virginia on the plateau tops. The older dwellings and family clusters tend to be placed with a normal observer position set back from the crest's rim with no view of the river.
RIDGE AND VALLEY

There is one inventoried block in the tightly folded Ridge and Valley Province: The Eggleston Valley block. Pulaski, Montgomery, and Giles have published soil surveys and were included in this research.

**Eggleston Valley**

Approximate Elevation Range 2940 - 1680 feet

The Eggleston Valley area was surveyed on March 9 and 13, 1993. Both days were cold and clear. The following routes were surveyed: 682, 625, 730, 652, 635, and Riverside Drive.

The Eggleston Valley block moves from the sideslopes of Gap Mountain over Spruce Run Creek, around Spruce Run Mountain, and into the Eggleston Valley. Few of the older dwellings surveyed had a view of the river. The newer the dwellings, the higher they tend to be sited. One Virginia Tech alumnus built on the end of Spruce Run Mountain on a steep slope overlooking the river. His cabin has a magnificent view of the New River’s bend around Buckeye Mountain, and is very exposed to winter wind and summer sun. His driveway up a steep hillslope is severely eroding. In the Eggleston Valley, a karst valley with many obvious sinkholes, a family-type cluster of dwellings was surveyed. A 1910 house stands on the edge of karst field at the bottom of a hillslope. Several houses built in the 1940’s stretch along the road near the older homeplace. There are three fairly new trailers placed, several hundred feet above the house on the steep mountainside, and a couple of 1970’s and newer homes protruding into the agricultural karst valley.

[Bill Henika, with the Virginia Division of Mineral Resources, theorizes that older houses were sited by people who worked the land and knew the locations of stable landforms. Modern houses tend to be sited by builders who do not have local knowledge of rock, soils, and water.]
ALLEGHANY PLATEAU

One hundred and twenty six dwellings were sampled in this province at five inventory blocks: Rich Creek Area, Adair Run and Thompson Cemetery Road, Neponset, Batoff Mountain and Piney Creek, and Gaymont. It needs to be noted that the Batoff Mountain and Gaymont blocks are located in the highly dissected plateau because from the river to the top of the plateau is beyond the one-and-a-half-mile corridor set by the study. Batoff Mountain in Raleigh County sampled dwellings along roads from the top of the plateau down to the river. The Gaymont Inventory block surveyed dwellings in Cane Branch Hollow and along roads rising up the hillslopes of the plateau, but not all the way to the plateau top. There are six counties through which the New River passes in this province: Giles, Virginia, and Monroe, Mercer, Summers, Raleigh, and Fayette Counties, West Virginia. All these counties have published soil surveys and were included in this study.

Rich Creek Area

Approximate elevation range 2280 - 1510 feet

March 16, 1992 was a cold overcast day. The Giles County routes surveyed: 460, 643, and a private road off 806.

The Rich Creek block is in a physiographic area referred to as the Alleghany Front, in the moderately dissected Alleghany Plateau. The rock of the area lays in horizontal layers like the rest of the Plateau, but the tectonic pressure that folded the Ridge and Valley affected the edge of this western Appalachia province.

The Rich Creek block lays between The Narrows and Rich Creek, just beyond Peters Mountain. The passage of the New River through this area is tight and narrow. Dwellings are placed on steep side slopes or high on plateau/bench like formation. The oldest log cabin in the block built in the mid 1800's was placed at the back of the plateau bench next to a spring. The newest dwellings were the homes built on the steeper slopes.
Adair Run and Thompson Cemetery Road

Approximate Elevation range 2800 - 1480 feet

April 16, 1992 was a hot clear day to survey in Mercer County, West Virginia. Routes 649, 648, and Thompson Creek Cemetery Road were surveyed.

This block of inventoried dwellings is in the moderately dissected plateau area. Dwellings were surveyed in a hollow called Adair Run and up the hillslope to the top of the plateau at Thompson Cemetery Road. Adair Run had twists with most of the dwellings' occupants related to one another. The dwelling in the hollow with the best house site with adjacent farm land and still placed up out of the flood plain was the old homeplace built at the turn of the century.

The plateau top along Thompson Cemetery Road was moderately wide and flat. The dwellings were older and were generally placed with a normal observer position. The newer dwellings on the plateau top were placed lower to the edge of the plateau with a view out across the neighboring hollow.

Neponset

Approximate elevation range 2180 - 1430 feet

The Neponset area in Summers County, West Virginia was surveyed on April 22 and 23, 1992. Both days were hot and sunny. The Bozoo Road and unmarked dirt road were followed for several miles.

Most of the Neponset block was on the wide gently rolling to flat plateau top. The dwellings were generally well kept and not clustered. The dirt road lead down off the top of the plateau to a pastoral agricultural bench overlooking the New River. All the dwellings on the bench were placed to the back of the bench without a view of the river. One farmer living in a trailer acknowledged the beauty of the river view and told my assistant and me exactly where to go to get the best panorama view.
Batoff Mountain and Piney Creek

Approximate elevation range 2400 - 1120 feet

March 28, 1992 was a mild sunny day to survey in Raleigh County, West Virginia. The survey block was located in the highly dissected area of the Alleghany Plateau. The routes travelled and surveyed were Route 41 and two roads off 41.

The Batoff Mountain and Piney Creek block moved from the high plateau top to the narrow bottom of the New River Gorge National Recreation Area. The plateau top was gentle to flat. The dwellings surveyed were on the edge of an extended water system. The camps in the New River Gorge were just on the edge of the National Park Service land. A number of the Piney Creek dwellings were vacant and had been voluntarily sold to the Park Service. On the west side of the river the road was busy people coming and going from their "camps". The occupants in this area referred to their riverside dwellings as "camps". Most of the dwellings were used seasonally. The occupants were quite economically diverse: a retired coach to state politician’s dwellings were surveyed.

Gaymont

Approximate elevation range 1860 - 830 feet

This inventoried block in Fayette County, West Virginia was surveyed on two days. This survey block is in the New River Gorge Area, but it is not within or above the National Recreation Area. The plateau is highly dissected in this area and only two roads in the New River Gorge were traveled. Cane Branch Hollow Road and Persimmon Road were surveyed on a warm March 28 day. Chestnutburg Road and a road off Chestnutburg Road were inventoried on the last day of the field research, May 17, 1992 which was a sunny, hot day.

The Gaymont block was south of Gauley Bridge. The first day surveying Cane Branch Hollow. The older dwellings were located in the lower part of the hollow. The newer dwellings at the top of the hollow or high along the new road leading to the hollow on excessively steep slopes.
The second day, the Chestnutburg Road on top of the plateau was surveyed. For a plateau top this area had some of the more pronounced relief encountered within the study. The relief created drainage pockets where family clusters could be placed. New dwellings of higher apparent real estate value were inventoried on the edge of the plateau with a commanding view of the gorge.
METHODS

INTRODUCTION

To explore methodically the relationship between landscape and culture is based on ideas from several authors. Stilgoe advocates seeking the form, purpose, and "jam" of folk design. Pierce Lewis advises interpreting "ordinary run-of-the-mill things." William Hoskins describes reading the landscape at a "micro scale." And Robert Melnick describes specific site elements that can be examined to understand the overall pattern of a landscape's spatial organization: patterns associated with large-scale relationships among major material components, predominate landforms, and natural features; patterns reflected in road systems; field patterns; distance between farmsteads; proximity to water sources; and orientation of structures to sun and wind.

The study questioned how patterns of the cultural landscape can be quantified (the specific elements of the cultural landscape studied were dwellings), whether cultural patterns cross physiographic provinces, whether these patterns change over time, and whether the apparent real estate value, or the origin of a builder affects these patterns. The dwelling sites researched were limited to rural residential. The four Appalachian physiographic provinces studied were: the Blue Ridge, the Great Valley, the Ridge and Valley, and the Alleghany Plateau. As described in Chapters Two and Three, these four provinces have distinct morphologies, and their cultural histories reflect both similar and varied influences.

There were two constant influences throughout the study: all sites were within the Appalachian cultural area, and were within 1.5 miles of the New River. The New River was chosen as a study transect and the relationship between the placement of dwellings and the river was observed.
SELECTION OF VARIABLES

One of the chief tasks in focusing this research project was to select and define variables that quantified patterns of rural, residential sites. To frame the research, independent secondary (cultural and landscape) variables and dwelling placement variables were defined, as discussed below. The main emphasis of the research was to examine the influences of the independent cultural and landscape variables (physiographic province, age, apparent real estate value, and origin of builder) on the siting of dwellings in the Appalachian region. Some comparisons were conducted to determine how the independent variables interacted to affect the placement of dwellings. Table 1 lists the four independent variables used in the study.

The dwelling placement variables surveyed suggest both the cultural preferences of a builder and the physical constraints of a site. It is difficult to distinguish the differences between preference and physical constraint. For example, is it by choice or constraint that Scotch-Irish during early settlement period built their homes at the tops of the hollows? Both these types of variables have implications regarding the placement of dwellings and the influence of physiographic province, age, apparent real estate value, and origin of builder.

Physical constraints of the landscape guide the placement of dwellings and the development of sites, and several landscape or geomorphological variables were also identified for the purposes of this study. These secondary variables included terrain type, degree of slope, relief, landform, and physiographic position. The inventory information collected to describe a dwelling's placement included ideas adapted from the site design elements described by Kevin Lynch, Robert Melnick, and William Marsh: views of the surrounding landscape, orientation, solar aspect of the dwelling, and elevation. Observer position of the dwelling was adapted from Burton Litton’s concept of observer position within a forest. An observer position characterizes the type of view from a dwelling—whether the occupants look down upon the surrounding landscape (superior), up at it (inferior), or are relatively even with it (normal). Table 2 lists the study’s secondary variables.
The study's independent and secondary variables are discussed and depicted in greater detail in Appendix A.

PERFORMING THE SURVEY

In order to inventory the variables of interest, a survey was developed and field tested on twenty dwellings. Revisions were made and the "Data Sheet" in Appendix B was used as the final survey instrument.

Within the study area, blocks of 20 to 35 dwellings were inventoried in rural areas of the Blue Ridge, Great Valley, Ridge and Valley and Alleghany Plateau. Densely clustered settlements were excluded from the study. Dwellings were sampled for each USGS 1:24,000 (7.5 minute) topographic map that includes the river corridor and for which published USDA-SCS soil survey information is available. Appendix B lists the USGS topographic maps and all available USDA-SCS soil surveys used in this study. At least one block of dwellings in each county with available soils information was surveyed. Wythe and Grayson Counties were the only two counties excluded from the study because of unavailable soil surveys.

Within each identified block, all roads were driven and the survey instrument completed for each residential structure. A photograph of each dwelling was taken, and occupant interviews were conducted. Within each province, the placement of dwellings on landforms was recorded.

The data collected "measured" the physiographic, cultural, landscape, and siting variables discussed above: location, cultural characteristics of the builder and dwelling, characteristics of the landscape, and aspects of a dwelling's placement. The location of a dwelling site was recorded by: physiographic province, county, U.S.G.S. quadrangle map, and by road. Cultural information about dwellings was acquired largely from the occupant interviews. The interviews identified not only the age of the structure, but also its apparent real estate value, its water source, and the origins (native or outsider) of its builder.
All dwelling sites were located on the appropriate soil survey map, the soil's detailed unit recorded, and associated characteristics identified. Data derived from published soil surveys indicated the associated characteristics of landform, slope gradient, parent material, and productive agricultural soils. Within each province, the placement of different ages of dwellings associated with distinct landforms and other field observations were noted.

ANALYZING THE DATA

After data were recorded for each dwelling, collective associations were explored. Of all the information collected for each dwelling, only data suggesting patterns within or between physiographic provinces were analyzed. The summary tables for each of the independent variables, located in the results chapter, show the variables that were included in the final analysis.

Statistical analyses were conducted on Version 6.06 of the Statistical Analysis System (SAS). Data were entered into Dbase IV and imported into SAS. All tests for statistical significance were chi square tests, which indicate that the compared variables probably do not exhibit the quality of independence, that they tend to be systematically related, and that the relationship transcends pure chance or sampling error. When the statistical probability is 0.05 or less, then the apparent relationship between variables is not due to chance, and the relationship is considered significant. In other words, the null hypothesis that there is no relationship between variables was rejected at the .05 level of significance (Best and Kahn, 1989).

For several comparisons, a 0.10 or greater difference between frequencies was used to indicate possible trends or relationships that, while not statistically significant, are useful for descriptive purposes. In several comparisons there were not enough occurrences in each cell to make a chi square valid.
<table>
<thead>
<tr>
<th>TABLE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVENTORY VARIABLES</td>
</tr>
<tr>
<td>INDEPENDENT VARIABLES</td>
</tr>
</tbody>
</table>

Landscape and cultural variables were surveyed at each site to determine their influence on the placement of dwellings.

- **Physiographic Province**
  The four physiographic provinces were observed to determine if the regions had similar or dissimilar patterns associated with dwelling placement. Physiographic Provinces were identified by geomorphological characteristics. In the Appalachian Region along the New River there are four distinct areas: the Blue Ridge Province, the Great Valley, the Ridge and Valley, and the Alleghany Plateau (Fenneman, 1938).
  - Blue Ridge
  - Great Valley
  - Ridge and Valley
  - Alleghany Plateau

- **Age of Dwelling**
  Age was assessed during interviews. The year the building was completed was recorded, and later re-categorized into Pre World War I, Between the Wars, and Post World War II. Architecture Through the Ages written by Talbot Hamlin identifies the world wars as highly significant in changing architecture, hence these periods seem a natural breaking point to group historical phases of the cultural landscape. (Hamlin, 1953).
  - Pre World War I
  - Between the Wars
  - Post World War II

- **Apparent Real Estate Value**
  The apparent real estate value of dwellings was determined by general appearance of the dwelling and the property, and personal interviews. The following criteria were used to categorize dwellings' apparent real estate value: the size, and materials of the main structure, the upkeep of the dwelling, if the dwelling is newly painted, if the yard appears clean and orderly.
  - High
  - Moderate
  - Low

- **Origin of Builder**
  A builder's place of upbringing may affect where s/he places his/her dwelling.
  - Outsider
<table>
<thead>
<tr>
<th>Table 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INVENTORIED VARIABLES</strong></td>
</tr>
<tr>
<td><strong>SECONDARY VARIABLES</strong></td>
</tr>
</tbody>
</table>

The landscape variables were used to identify cultural landscape patterns associated with the placement of dwellings. See the description of the secondary variables in Appendix A.

- **Orientation of Dwelling**
  - Road, River, Other

- **View of New River**
  - True, False

- **Dwelling's Solar Aspect**
  - N, NE, E, SE, S, SW, W, NW

- **Landforms Solar Aspect**
  - N, NE, E, SE, S, SW, W, NW

- **Observer Position**
  - Superior, Normal, Inferior

- **Physiographic Position**
  - Crests, Hillslopes, Footslopes, Bottomland, Terraces

- **Shape of Slope**
  - Collecting, Spreading

- **Terrain**
  - Depositional, Erosional

- **Shape of Soil Unit**
  - Gentle, Moderate, Steep

- **Relief**
  - Normal, Subnormal, Excessive, Flat

- **Prime Agricultural Soils**
  - True, False

- **Drinking Water Supply**
  - Pipe, Spring, Well
FIGURE 6
EXAMPLE OF INVENTORY FIELD MAP
Each dwelling was located on a USDA, SCS Soil Survey Map. This example is from the Soil Survey for Fayette and Raleigh Counties, Scale 1:20,000.
Gaymont Study Block
FIGURE 7
EXAMPLE OF INVENTORY FIELD MAP
Each dwelling was located on a USGS 7.5 Minute Topographic Survey Map. This example from the Fayetteville USGS Topographic Map, Scale 1:24,000.
Gaymont Study Block


RESULTS

INTRODUCTION TO THE ANALYSIS OF THE RESULTS

Three hundred twenty-eight rural residential dwellings were sampled, all of which were either isolated dwellings or located in what appeared to be isolated family clusters. Tables 3, 6, 8, and 10 show the number of dwellings surveyed in each category for the independent variable described. The Summary Tables 4, 7, 9, and 11 show two types of significant and meaningful relationships. An "∗" symbolizes statistical significance, and a "◆" indicates that, though statistical tests do not prove significance, the comparison shows a meaningful relationship. A meaningful difference indicates that the percentages of the chi square test demonstrates trends and patterns.

For a detailed description of the variables see Appendix A. See Appendix C the chi square test.

STATISTICAL RESULTS BY PHYSIOGRAPHIC PROVINCE

Table 3 shows the number of dwellings surveyed in each province and what percentage of the total sample this number represents. In the Blue Ridge Province 90 dwellings were surveyed, or 28% of the total sample. In the Great Valley Province 72 dwellings were surveyed, or 22%. In the Ridge and Valley Province 40 dwellings were surveyed, or 12%. And in the Alleghany Plateau Province 126 dwellings were surveyed, or 38%.

By province, each comparison that indicates significance, either statistical or meaningful difference, is reported below. An "∗" indicates there is statistic significance. A "◆" indicates a meaningful difference.
Table 3

FREQUENCY OF DWELLINGS BY PROVINCE

<table>
<thead>
<tr>
<th>PROVINCE</th>
<th>Frequency of Dwellings</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Ridge</td>
<td>90</td>
<td>27.4</td>
</tr>
<tr>
<td>Great Valley</td>
<td>73</td>
<td>22.2</td>
</tr>
<tr>
<td>Ridge and Valley</td>
<td>40</td>
<td>12.2</td>
</tr>
<tr>
<td>Allegheny Plateau</td>
<td>126</td>
<td>38.3</td>
</tr>
</tbody>
</table>

Table 4

CHI SQUARE TEST SUMMARY TABLE BY PROVINCE

Frequencies for all variables by province (Blue Ridge, Great Valley, Ridge and Valley, Alleghany Plateau).

Province X

Age
Apparent Real Estate Value *
Origin of Builder *
Orientation *
View of River *
House Solar *
Land Solar *
Observer Position *
Physiographic Position *
Shape of Slope
Terrain Type *
Slope *
Relief *
Water Source *
Prime Agricultural Soils *
Province by Apparent Real Estate Value *

Overall the Blue Ridge, the Great Valley, and the Ridge and Valley Provinces have a similar occurrence of dwellings in each apparent real estate value category. The highest occurrence of dwellings in these three provinces was identified at a moderate real estate value level (for each province over 60% percent of the dwellings). Under 8% of the dwellings in these three provinces were identified as high apparent real estate value. Except in the Alleghany Plateau Province, the frequency of dwellings occurring in each real estate value category was close to the expected frequencies for the total sample.

Forty percent of the sampled dwellings in the Alleghany Plateau were dwellings of moderate real estate value, making it the province with the lowest percentage of dwellings in this category. Nor does the distribution of dwellings in the high and low real estate value categories in this province follow the other provinces' patterns. Forty six percent of the Alleghany Province's total dwellings fall in the lower real estate bracket, 10% more than the expected frequency for the total sample. This province has the greatest physiographic and economic contrast. It also has the largest number of dwellings of any province identified as dwellings of high real estate value, at 13% of the province's total.

Province by Origin of Builder *

In the overall sample, the original builders are predominantly raised in the local county. Of the total sample only 11% of the builders are identified as outsiders.

Province by Dwelling Orientation *

Of all the dwellings, 82% have an orientation toward the closest road. There appears to be statistical significance in this comparison, but it may not be valid because 44% of the cells have an expected count of less than five.
Province by Dwelling View of New River *

Most of the dwellings sampled do not have a view of the river. In the Blue Ridge, Great Valley, and Ridge and Valley Provinces, approximately 2/3 of the dwellings lack a view of the river, while 1/3 have one. The Alleghany Plateau has the greatest percentage of dwellings without a view of the river (82%), differing from the pattern of the other three provinces.

Province by House Solar *

The solar orientation of dwellings strongly influenced by the presence of roads. Over 82% of the all the dwellings surveyed are directly facing the closest road. When there is a predominate road direction within a province, such as in the Ridge and Valley, there is a high incidence of dwellings placed perpendicular to the dominant road direction. In the Ridge and Valley most roads follow the landforms running northeast to southwest, over 50% of the dwellings surveyed are west facing, 55% are placed on a west sloping landform, and 88% directly face the road.

The highest occurrences of solar aspect of the landforms on which dwellings are placed also appears to influence the dominant direction of dwellings’ solar aspect. The chi-square comparison of landforms’ solar aspect to province, and the solar aspect of dwellings to province are both statistically significant relationships.

Province by Land Solar *

Throughout all the provinces, the dwellings’ solar aspect tends to match the landforms on which they are placed. The figure below shows the number of dwellings whose solar aspect matches the solar aspect of the landform on which the dwelling sits.
Table 5

FREQUENCY OF MATCHED SOLAR ASPECTS OF DWELLINGS AND LANDFORMS

<table>
<thead>
<tr>
<th>SOLAR</th>
<th>Frequency of Dwellings</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Matched</td>
<td>123</td>
<td>37.4</td>
</tr>
<tr>
<td>Matched</td>
<td>206</td>
<td>62.6</td>
</tr>
</tbody>
</table>

Of the 329 dwellings sampled, 62% are oriented to the slope direction of the landform on which they sit. If dwellings face the aspect of the landforms on which they are placed, then the roads (toward which over 83% of the dwellings are oriented) tend to be down slope from residential dwellings.

In the Blue Ridge dwellings tend to be placed on landforms with three dominant solar aspects: 20% of the landforms have a southern aspect, 19% an eastern aspect, and 19% a western aspect. In the Great Valley the northern and southeastern landforms are the two most frequently identified aspects on which dwellings are placed; 23% have a northern aspect, and 21% a southeastern aspect. In the Ridge and Valley by far the highest occurrence of landforms on which dwellings are placed have a solar orientation facing west (55%). The most apparent trend for the solar aspect of dwellings is that 50% face west, mirroring the strong 55% of the west facing landforms on which dwellings are placed. In the Alleghany Plateau the highest occurrences of dwellings are placed with a solar aspect of south and east (21% facing south, and 19% facing east).

The chi square test indicates statistical significance but may not be valid because 22% of the cells have expected counts of less than 5.
Province by Observer Position *

Of the surveyed dwellings, the inferior and normal observer positions are the most common locations for dwellings to be placed. In the Blue Ridge and Great Valley the greatest number of the dwellings are located in the inferior position. The well developed bottomland of the Blue Ridge and the Great Valley Provinces may help explain why these two provinces have a higher percentage of their dwellings located in inferior positions than the other two provinces. In the Blue Ridge, 26% of the dwellings are located on bottomland. In the Great Valley, 30% are located on bottomland.

Unlike the Blue Ridge and Great Valley, the Ridge and Valley and the Alleghany Plateau provinces do not have many dwellings placed on bottomland. The Ridge and Valley and Alleghany Plateau Provinces have a majority of their dwellings placed in a normal observer position. The Ridge and Valley has 43% placed in a normal observer position, which can loosely be related to the 55% of the dwellings located on hillslopes. The Alleghany Plateau Province has 40% of its dwellings placed in a normal observer position, but crests represent the predominant physiographic position on which dwellings are placed (47%). In the Alleghany Plateau a crest is most often a plateau top. The dominant normal observer position derives from the fact that, from a plateau top, which is usually a flat to rolling plain, there is an equal view up and down.

There is not only a significant relationship between the variables of province and observer position but also between observer position, physiographic position, and slope. Dwellings with inferior observer position are often on bottomlands and gentle slopes. Dwellings with a normal observer position are often on footslopes, hillslopes or crests and are on moderate to steep slopes. Dwellings with superior observer positions are often located on crests distributed fairly equally across all three slope categories.
Province by Physiographic Position *

In the Blue Ridge and Great Valley there is a similar pattern of dwellings placed on certain physiographic positions. Within the Blue Ridge the highest occurrence of dwellings are located on hillslopes (29%). The Great Valley has 30% of its dwellings located on bottomlands and terraces. In the Blue Ridge and Great Valley all categories of physiographic position were relatively similar in their distribution.

The Ridge and Valley has a high 55% of its dwellings placed on hillslopes and, unlike any other province, no dwellings are placed on bottomlands or terraces. This lack may be due to the limited areas of bottomland in that province, as well as the limited number of inventoried sites in the Ridge and Valley.

Only in the Alleghany Plateau are crests the predominant location placement of dwellings (47%). The excessively steep hillslopes of the province, and the relatively gentle slope of the plateau crests may explain the high occurrence of dwellings on crests.

Province by Shape ♦

For the entire sample, there are 12% more dwellings placed on spreading landforms than collecting landforms, but this frequency does not hold for each individual province. In the Blue Ridge, Great Valley, and Ridge and Valley provinces, the frequency of dwellings occurring on collecting elements is between 54 and 65%. The Alleghany Plateau breaks the pattern when a majority of the dwellings (60%) occur on spreading landforms. There is no statistically significant difference between the four provinces and the shape of slope on which builders have chosen to place their dwellings.
Province by Terrain *

A majority of the dwellings sampled are located on erosional terrain; in the Blue Ridge Province 69%, in the Great Valley 63%, in the Ridge and Valley 93%, and in the Alleghany Plateau 75%.

Province by Slope of Soil Unit *

Within the Blue Ridge Province the highest occurrence of dwellings were placed on moderate slopes (37%), and 35% of the dwellings on steep slopes. The Blue Ridge’s smallest frequency of dwellings were identified as being placed on gentle slopes (27%). The Great Valley has the greatest percentage of its dwellings placed on gentle slopes (51%) and the least on steep slopes (11%). Within the Ridge and Valley, a majority of the dwellings were placed on steep slopes (52%). This high number may reflect the limited availability of gently and moderately sloping land in the Ridge and Valley Province. In the Alleghany Plateau, the greatest number of dwellings were placed on steep slopes (40%) and the least on moderate slopes (27%).

Province by Relief *

For the entire sample and within each province, there are more dwellings placed in positions of normal relief (38%) than in the subnormal, excessive, and flat or concave categories of relief. In the Blue Ridge, Great Valley, and Alleghany Plateau, dwellings are seldom placed on excessive relief. As a contrast to the patterns of these three provinces, the landscape of the Ridge and Valley has little flat or concave relief. Of all the provinces, it has the fewest dwellings on flat or concave relief and the most on excessive relief (28%).

Province by Water Supply

Of the sampled dwellings, 60% do not have known water supplies. Due to the high incidence of unknowns this variable is better used for descriptive purposes than for a statistical measure.
The Blue Ridge and Alleghany Plateau provinces have the highest percentage of dwellings obtaining drinking water from wells. In the Blue Ridge the number of springs is a little less than half that of wells. In the Alleghany Plateau the number of springs are almost equal to the number of wells. The Alleghany Plateau has eight dwellings located on piped water systems.¹

The Blue Ridge and Ridge and Valley provinces have too few dwellings with known water supply to identify any patterns.

Province by Prime Agricultural Soils

Most dwellings are built on sites that are not considered prime agricultural soils. The Blue Ridge and the Ridge and Valley have over 93% of the dwellings on non-prime agricultural soils. This may indicate that either there are no prime soils in the area, or that the Blue Ridge and Ridge and Valley dwellings are located away from prime soils.

STATISTICAL RESULTS BY AGE

The number of dwellings in the age categories Between the Wars and Pre-World War I combined is less than the total number of dwellings in the Post-World War II category. In the Pre-World War I category there are 52 dwellings identified, or 16% of total sample; in the Between the Wars category there are 40 dwellings, or 12% of total; and in the Post-World War II category there are 237 dwellings, or 72% of total. There is no significant relationship between province and age of dwellings.

¹ Seven of these homes, built by Allied Chemical, were high income dwellings connected to an extensive water system constructed in the 1960's. One low income dwelling is located on the far edge of a local water system. Sampling such dwellings demonstrates the difficulty of drawing the line between urban and rural, because all the dwellings on water lines fit the rural criteria of being either isolated or within family-type clusters.
Table 6

FREQUENCY OF DWELLINGS BY AGE

<table>
<thead>
<tr>
<th>AGE</th>
<th>Frequency of Dwellings</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre World War I</td>
<td>52</td>
<td>16</td>
</tr>
<tr>
<td>Between the Wars</td>
<td>40</td>
<td>12</td>
</tr>
<tr>
<td>Post WW II</td>
<td>237</td>
<td>72</td>
</tr>
</tbody>
</table>

Table 7

CHI SQUARE TEST SUMMARY TABLE BY AGE

Frequency for all variables by age (Pre World War I, Between the Wars, and Post World War II.

Age X
Orientation
View ♦
House solar
Land Solar
Observer Position ♦
Physiographic Position
Shape of Slope
Terrain Type
Slope
Relief *
Water Source *
Prime Agricultural Soils ♦
Age by Dwelling View of New River

Though there is no statistical significance between age and view of the river, few older dwellings have a view of the river. Of the Pre-World War I dwellings only 19% have a river view; of the Between the Wars dwellings 22% have one; and of the Post-World War II dwellings 33% catch a glimpse of the river.

Age by Observer Position

A majority of the dwellings in each age group were identified as being in a normal observer position. The expected percentage in the normal position for all dwellings sampled is 39%. In the normal observer position, the Pre World War I category has 50% of its dwellings, Between the Wars category has 40% of its dwellings, and the Post World War II category has 36% of its dwellings.

Over time fewer dwellings have been placed in normal and inferior position and more dwellings are placed in the superior position. In Pre-World War I category, 40% of the dwellings are placed in an inferior position. By Post-World War times only 36% are in an inferior position. In the Pre-World War I group, only 10% are placed in a superior position but in the Post World War II group 28% are in the superior position. This may indicate either that people have chosen higher places more in recent years, or that they continue to prefer the normal observer position sites, but these are now limited because older dwellings have filled them. There is no significant statistical significance between the placement of dwellings in observer position and age, but there is an apparent trend over time.

Age by Relief

Most dwellings are in a position of normal relief in all age categories. No dwellings are built on excessive relief until after World War II (17% in this category).
Age by Water Supply

More wells are used by dwellings built in the Post-World War II period than in the Pre-World War I period or in the Between the Wars period. Dwellings built in the Pre-World War period rely on springs to a greater extent than do those built in the Between the Wars period, and to a much greater extent than those built in Post-World War II period. Only dwellings from the Post World War II period were identified as relying on piped water systems.

STATISTICAL RESULTS BY APPARENT REAL ESTATE VALUE

Apparent real estate value of a dwelling was determined by personal interviews and the general appearance of the dwelling (i.e., its size, its upkeep, the condition of its paint) and of the surrounding property (condition of the yard).

<table>
<thead>
<tr>
<th>REAL ESTATE VALUE</th>
<th>Frequency of Dwellings</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>119</td>
<td>36.3</td>
</tr>
<tr>
<td>Moderate</td>
<td>180</td>
<td>54.9</td>
</tr>
<tr>
<td>High</td>
<td>29</td>
<td>8.8</td>
</tr>
</tbody>
</table>

Frequency Missing = 1
Table 9

CHI SQUARE TEST SUMMARY TABLE BY APPARENT REAL ESTATE VALUE

Frequencies for all variables by apparent real estate value (high, moderate and low).

Real Estate Value X
Orientation *
View *
House Solar
Land Solar
Observer Position *
Physiographic Position *
Shape of Slope *
Terrain Type
Slope *
Relief *
Water Source *
Prime Agricultural Soils

Apparent Real Estate Value by Dwelling Orientation *

Of the dwellings identified as low and moderate real estate value, over 85% of the dwellings are oriented toward the road. In the high real estate value category, the occurrence of dwellings oriented toward the road drops to 41%, and 38% face the river from the expected frequency of 82%.

Apparent Real Estate Value by Dwelling View of New River *

Of all the dwellings identified as having a low or moderate real estate value, over 73% do not have a view of the river. Of the dwellings in the high real estate value category, 83% do have a view of the river.
Apparent Real Estate Value by Observer Position *

Of the dwellings identified as low or moderate value, over 77% are in a normal observer position. Only the dwellings categorized as high real estate value have a majority of the occurrences (48%) in the superior observer position.

Apparent Real Estate Value by Physiographic Position *

Dwellings of low real estate value are located predominantly on crests (35%). The large number of low value dwellings in the Alleghany Plateau may explain this high percentage. (In the Alleghany Plateau a majority of the dwellings, 47%, are placed on crests, and 58% of the dwellings from the province are identified as low value). For the entire sample, the fewest dwellings were identified as being placed on bottomlands and terraces (13%). In the moderate real estate value category, a majority of dwellings are placed on crest (28%). In the high real estate value group, 45% of the dwellings are located on hillslopes. In the overall sample, the least number of dwellings are located on footslopes (7%).

Apparent Real Estate Value by Shape *

In the low and moderate real estate value categories, slightly more than half the dwellings are placed on spreading elements (54% in the low value category, and 52% in the moderate value category). The high value group again breaks the pattern by 86% of the dwellings occurring on spreading elements, well over the average expected percentage of 55.

Apparent Real Estate Value by Slope *

In the low and moderate real estate value groups, the dwellings are all within 12% percentage points of being equally distributed across the gentle, moderate, and steep slope categories. The high value group breaks the pattern by a large percentage, 83% of the high value dwellings are located on steep slopes.
Apparent Real Estate Value by Relief *

Between 41 and 42% of the low and moderate real estate value dwellings are predominantly on
normal relief. High value dwellings are predominantly on excessive relief (55%).

Apparent Real Estate Value by Water Supply *

Most dwellings have water supplied by wells, except in the high value group where most
dwellings supplied by piped water.

STATISTICAL RESULTS BY ORIGIN OF BUILDER

Overall the original builders are predominantly from the local area, with only 11% identified as
outsiders. An outside builder is defined as an original builder who is not from the local county
in which a dwelling is located). The dwellings with unknown builders make up 15% of the entire
sample.²

There are 35 outsider builders in the entire sample, or 11% of the total, 244 local builders, or
74% of the total, and 49 unknown builders, or 15% of the total. To compare statistically the
outsider builders and the local builders, the unknown builders are excluded from the following
chi-square tests. When outsiders and local builders are compared, the outsiders make up 13%
of the count and the locals, 87%.

² Dwellings were marked as having an unknown builder when no one was home to answer
the interview questions. It may be that the occupants were absent because they the surveying was
done during work hours, or because they live elsewhere. There was a greater incidence of unknown
builders in the Great Valley Province, almost 15% more than in any other province.
Table 10

FREQUENCY OF DWELLINGS BY ORIGIN OF BUILDER

<table>
<thead>
<tr>
<th>BUILDER</th>
<th>Frequency of Dwellings</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outsider</td>
<td>35</td>
<td>12.5</td>
</tr>
<tr>
<td>Local</td>
<td>245</td>
<td>87.5</td>
</tr>
</tbody>
</table>

Frequency Missing = 49

Table 11

CHI SQUARE TEST SUMMARY TABLE BY ORIGIN OF BUILDER

Frequency for all variables by origin of builder (outsider and local).

Origin of Builder X
  Apparent Real Estate Value *
  Orientation *
  View *
  House Solar
  Land Solar
  Observer Position
  Physiographic Position
  Shape of Slope
  Terrain Type
  Slope *
  Relief *
  Water Source *
  Prime Agricultural Soils
Origin of Builder by Apparent Real Estate Value

An equal number of outsider and local builders' dwellings were encountered in both the moderate and low real estate value categories (9% were outsider builders and 91% were local builders). Dwellings built by outsiders occur equally as often in the moderate and high value groups. In a majority of the surveyed, the local builders' dwellings were identified as moderate value; only 4% were identified as high value. The outsider builders' dwellings were much more often identified as of high real estate value, at 37%.

Origin of Builder by Orientation

In contrast to 26% of the outsider builders, only 4% of the local builders' dwellings are oriented toward the New River. A majority of the local builders (83%) have oriented their dwellings toward the road, almost 15% more than the outsider builders.

Origin of Builder by Dwelling View of New River

Sixty three percent of the outsider builders have a view of the New River from their dwellings, and only 21% of local builders have a view of the New River.

Origin of Builder by Physiographic Position

Most outsiders placed their dwellings on hillslopes (48%). Outsiders have the least number of dwellings placed on crests, only 11%. The occurrence of local builders' dwellings on different landforms did not vary more than 13% among all the physiographic positions.

Origin of Builder by Slope

The outsider builders have a higher percentage of dwellings placed on steep slopes, more than in any other slope category, and more occurrence than the local builders' dwellings on steep
slopes. The outsiders have the fewest dwellings placed on moderate slopes, only 14%. The local builders have an almost equal distribution of dwellings placed on gentle, moderate, and steep slopes.

**Origin of Builder by Relief * **

A high 46% of the outsider builders have placed their dwellings on excessive relief. This is 20% more occurrences on excessive soil than the next highest category of occurrences, which is in the normal category. The least occurrence for outsider builders (6%) is on subnormal relief. Most of the subnormal relief is identified in the West Virginia Alleghany Plateau because the populated plateau tops are considered subnormal.

Local builders have chosen normal relief 13% more often than they have placed dwellings in any other relief category. The next highest occurrence of local builder's dwellings is found in on subnormal relief. Excessive relief is the location where the fewest local outsiders site their dwellings.

It appears that local builders build on all available normal relief, so that outsiders were forced to settle on excessive slopes, or do outsiders prefer excessive slope?

**Origin of Builder by Water Supply * **

Few outsider builders have springs, only 6%. An equal number of outsider builders have water supplied by pipes and wells (47%). Only one local builder is supplied by water from a water system, but 44% get water from springs and 55% get water from wells. The outsider builders rely more heavily on water systems than the local builders, and the local builders rely more heavily on springs than the outsiders.
SUMMARY COMPARING DWELLING PLACEMENT TRENDS WITHIN THE STUDY CORRIDOR

The "Results" chapter outlined the analysis of the research inventory, and the following text is a distillation of those results. In this section, various aspects of dwelling placement in each province were compared and contrasted. The dwellings inventoried in the Blue Ridge and Great Valley provinces are placed in a similar manner. Those dwellings surveyed in the Ridge and Valley Province have some landscape trends resembling those in the Blue Ridge and Great Valley, but the province's terrain with long, level-top ridges and steep hillslopes do not have the extended rolling slopes of the Blue Ridge and Great Valley. Therefore the patterns are slightly altered in this province. The dwellings studied in the Alleghany Plateau Province were positioned in the landscape in a manner notably different from that in the other three provinces, because their builders were severely constrained by the rugged terrain and dramatic elevation changes characteristic of the province.

Blue Ridge and Great Valley

The landscape patterns of the Blue Ridge and Great Valley are the most similar with dwellings generally placed in inferior observer positions in the landscape, in all physiographic positions, and on gentle to moderate slopes. The Blue Ridge and Great Valley share some dwelling placement characteristics with the Ridge and Valley: most of the dwellings in these three provinces are oriented toward the road and are in positions of normal relief. In these three provinces only one third of the dwellings have a view of the New River. The older dwellings in these two provinces tend to have the barn located uphill from the main house.

Blue Ridge, Great Valley, and Ridge and Valley

In all three of these provinces, the older dwellings tended to be tucked into the landscape on benches, in coves, or in hollows. Newer dwellings were placed higher in the landscape with longer views and more exposure. There tended to be more family clusters in these provinces.
than in the Alleghany Plateau. The ancestral homeplaces were generally sited without a view of the river on uplands close to a reliable water source. The children’s dwellings were often placed close by, above the older house. For the Blue Ridge, Great Valley, and Ridge and Valley, the breakdown of real estate value was the most similar, with over 60% in the moderate value group in each province.

Ridge and Valley

Dwellings in the Ridge and Valley area were identified as having a tendency to be placed with a normal observer position, on steep slopes, and on excessive relief.

Alleghany Plateau

The Alleghany Plateau landscape is quite rugged. The gentle slopes on the plateau tops and the hollow bottoms make for a cultural landscape that differs widely from the landscape of the other three provinces. The dwellings in the Alleghany Plateau are the least likely to have a view of the New River, and they tend to be placed in a normal observer position on crests. The trend was for the dwellings to be placed in positions of subnormal relief which included all the plateau tops and benches, especially the older buildings. However, this trend may not be significant because, in the Mercer, Monroe, Summers county New River area, the U.S. Army Corps of Engineers owns the valley bottom. In Raleigh and Fayette Counties, though the limited availability of flat land has restricted the number, there were old and new dwellings in the hollows.

In the Alleghany Plateau New River area, the newer dwellings tended to be placed along new roads in exposed locations on steep hillslopes or on the plateau rim, often with spectacular views overlooking the gorges. Though in all the provinces, new roads were significant in influencing a change in the placement of dwellings, this influence is greatest in steep West Virginia terrain. The traditional West Virginia roads go straight up the hollows — one resident of Cane Branch described a childhood memory of going to visit kin at the top of the hollow by walking the creek.
An old saying in West Virginia attests to the traditional roads' proximity to creeks: "I'll come visiting Lord willing and the creeks don't rise." By contrast, the new roads follow transportation specifications and tend to not go over a certain grade (usually 8%), so that they often wind miles along the hillslopes to go from the bottom of a hollow to the top. A Mrs. Hudnel, a resident of Cane Branch, described her dismay at one such road: "If you took off driving I could beat you to the falls (New River) just walking."

**Great Valley, Ridge and Valley and Alleghany Plateau**

Though the Alleghany Plateau stands out as unique because of its history, economy and terrain, there are various trends, including the impact of roads, that the province shares with the other provinces. The Alleghany Plateau and Ridge and Valley areas, share the peculiarity of having a significant number of dwellings placed on prime agricultural soils. Fenneman describes the rolling valley bottom of the Great Valley as reminiscent of the crests of the Alleghany Plateau because of the gentle slopes and similar elevation (Fenneman, 1938).

**Ridge and Valley and Alleghany Plateau**

The Alleghany Plateau and the Ridge and Valley both have a predominant number of dwellings placed with a normal observer position, which seems appropriate for areas with wide expanses of land like the flat crest tops of the Alleghany Plateau and the rolling plain of the Great Valley.
DISCUSSION AND CONCLUSIONS

The following "Conclusion" is divided into three parts. First, the current land use patterns observed for each province along the New River Corridor are described, building on the information in the "Historical Context" chapter. The second part specifically discusses the dwelling placement trends found within the study corridor, and factors that may have influenced the changes that have occurred over time. The third part offers suggestions for designers and land planners to be conscious of the cultural landscape and the changing patterns and trends that could be detrimental to the unique regional character of the Appalachian landscape.

CURRENT LAND USE PATTERNS BY PROVINCE

Blue Ridge

In the investigated area of the Blue Ridge Province, more gently sloping land was found in coves, hollows and benches; roads are along the drainageways and low ridge crests. Residences, pasture lands, and mixed deciduous forest are the predominant land uses and land covers. The bottomland is often prime agricultural soil used for pasture and modern residential structures, while the steeper sloping uplands are usually forested, and the wide, flat-topped ridges are used for pasture and residences. There is less bottomland as the river passes through the Unaka Mountains, marking the river’s entrance into the Great Valley Province.

The South Fork of the New River in Ashe and Alleghany Counties was designated Wild and Scenic in 1976. In conjunction with the designated river, the state of North Carolina created the New River State Park near the town of Jefferson. Since the South Fork was designated, the area has experienced tremendous residential and second home development pressure. Recreation has come forward as a leading new industry. With the changing values of the North Carolina Blue Ridge population, agriculture has changed. No longer are the farms used primarily to provide
a family with basic food supplies. Christmas trees have become the leading crop in the area.

The Grayson-Carroll County New River area has few modern houses but, according to Hauser, these counties have a large number of farms raising beef cattle.

A large section of the river in Carroll County below the Appalachian Power Company's Billsby Dam is under management of the Jefferson National Forest.

**Great Valley**

The Great Valley is generally characterized as a gentle, rolling landscape with fertile soils, and it has long been known as a productive agricultural area. Compared to other counties of the Appalachian Region the number of farms in the Great Valley is high but, in recent years, there has been a decline (Hauser, 1987). Along the New River many stands of young trees are evidence of secondary succession and abandoned fields. The Great Valley's farms raise predominantly beef cattle (Hauser, 1987).

In the Great Valley and Ridge and Valley, the railroad runs along both sides of the river, often with roads paralleling the tracks. Other roads follow drainageways, and low ridges. The dwellings at lower elevations along the river in both the Great Valley and Ridge and Valley were constructed after the completion of Claytor Lake Dam in 1938. One Litton Bottom resident explained that only newer houses are placed in the lowlands adjacent to the river because the dam provides flood control.

Settlement tends to be located on the more gently sloping land. There is dense residential development adjacent to roads and urban centers, the largest towns along the New River being Dublin and Radford. Blacksburg and its university, Virginia Tech, are in the New River watershed in Montgomery County. The areas directly adjacent to Claytor Lake also have dense residential development but were excluded from the study because the dwellings were not isolated or in family-type clusters.
At Radford, the Radford Army Ammunitions Plant, which sits beside a horseshoe bend of the river, is one of the largest employers in the area.

Ridge and Valley

In the Ridge and Valley, the steep slopes and narrow valley create a much more rhythmic, predictable, and distinctive physical and cultural landscape than that of the other provinces. As in the Great Valley, the railroad tracks run both sides of the river. Where the steep hillslopes meet the river there are no roads, but the rail lines have constructed paths along these steep mountain slopes. Travelling up the valleys, the roads hug the tributaries and cross ridges at water gaps and windgaps. Farms and residences compete for flat land, whether bottoms, benches, flat topped spur ridges, or an occasional flat-topped ridge. Settlements cluster in small areas of bottomland between the folded mountains and turn to creep up the tributaries. There are people and dwellings near Pearisburg, Rich Creek, Narrows, and Glen Lyn.

The area has been traditionally agricultural with the hillslopes and ridges forested. In 1982 it was reported that the Ridge and Valley counties had over 30% of their lands in farms and had a fairly low number of farms, mostly beef cattle operations (Hauser, 1987). Mixed Deciduous Forest dominates the ridges and steep slopes, approximately 50% of which are managed by the Jefferson National Forest. The Appalachian Trail follows the ridges of Peters and Pearis Mountain, crossing the New River in Pearisburg. In this province there are several private picnic recreation facilities along the river as well as many miles of river front used for more informal recreating - areas not officially designated for recreation, but often used for camping, swimming, fishing, and socializing.

The industries and businesses located along the river in the Ridge and Valley are surprisingly varied. Hoechst Celanese is located south of Pearisburg; just south of the town of Narrows there is a stock yard; and at Glen Lyn an Appalachian Power Plant. Virginia Tech is the largest employer in the region.
Alleghany Plateau

The New River area of the Alleghany Plateau province is primarily forested due to the excessive relief, and to the fact that large tracts are managed by the U.S. Army Corp of Engineers (in Giles, Monroe, Mercer and Summers) and the National Park Service (the New River Gorge National Recreation Area in Fayette County). The relief of this highly dissected region is quite restrictive for residential development, but the privately-held steep, wooded slopes are frequently timbered and mined. Above these slopes are areas of gently graded benched plateau and plateau top that support farms, fields, and pasture. The old roads in this dissected area are in the drainageways and rise steeply to the plateau tops, while modern roads are designed to be less steep and are therefore much more circuitous in this terrain of dramatic relief. (See locals' characterization of roads under "SUMMARY COMPARING DWELLING PLACEMENT TRENDS WITHIN THE STUDY CORRIDOR, ALLEGHANY PLATEAU.")

Though agriculture has never been the primary motivation for migration into the area, as it has in the other provinces, it has been present in the West Virginia Plateau since non-Native settlers arrived. The land uses of Giles, Monroe, Mercer, and Summers are predominantly agriculture and forestry, but there has been a marked decline in agriculture in the past few decades. In 1982, Monroe was reported to have substantially more than 30% of its land in farms. Mercer and Summers Counties were reported to have less than 30% of their lands in farms. Raleigh and Fayette, though they are the two largest counties of the study area, had less than 400 farms each in 1992. In each Alleghany Plateau county that follows the New River, more than 80% of the farms' main earnings were from beef cattle (Hauser, 1987).

With the decline of mining due to mechanization of the mines and depletion of the coal, there is presently high unemployment along the New River corridor in West Virginia. However, recreation has become an important new industry in the area. In 1968, the first commercial whitewater rafting trips went down the New River Gorge. This National River, stretching from Hinton to the Fayetteville area, has been managed by the National Park Service since 1978; they send out a list of dozens of licensed outfitters.
A few miles down river, there is a state park at Hawks Nest. Below the park a dam diverts the entire normal flow of the river through Gauley Mountains to an hydroelectric plant. This plant services the metallurgical plant at Alloy, which employed a number of the occupants of dwellings surveyed at the Gauley Bridge Inventory Site. The New River below the dam is called the "Drys" because of its normally dry conditions.

The apparent real estate value characteristics in the Alleghany Plateau contrast with those of the other provinces, with the highest percentage of low value dwellings and high value dwellings. This economic stratification is mirrored in the separation and contrast of high and low terrain. In Fayette and Raleigh Counties, a couple of the interviewees referred to "creekers" and "ridgers," and one said that there is an economic dichotomy between the two groups, noting that in school the creekers and ridgers formed rival cliques.

SIMILARITIES OF PROVINCES’ DWELLING PLACEMENT PATTERNS

Economic trends were not the only ones to be consistent along the entire New River. First, many dwellings in all four areas were surrounded by clearings, with grass, at least a few ornamental trees and shrubs, and often a vegetable garden (see Figures 8 and 9). Even second homes and the West Virginia river "camps" had some ornamental plants and occasional vegetable gardens. Second, the majority of the dwellings sampled were built after World War II by local builders. And third, the newer dwellings were more likely to have a view of the New River, especially if the dwelling was considered of high real estate value, or built by an outsider builder.

In all the provinces the placement of modern dwellings tended to differ from the older established patterns. Some older dwellings tended to be tucked in hollows, coves, and benches set back against hillslopes protected from the wind, rain, and sun; they were sited according to physical constraints such as proximity to roads and springs and avoidance of excessively windy or hot locations and frost pockets. Other older houses were nestled in the middle of a landholding have so as to have wide views of the original property, often from ridge-top to ridge-top. Older
Appalachian dwelling-sites tend to be arranged to emphasize protection, isolation, and self-containment, because family and self-sufficiency were priorities for their builders. Even in the Alleghany Plateau, where most of the dwellings were located on the plateau top, the older dwellings were placed low on the plateau in less exposed positions. See Figures 10, 12, and 13 for examples of the placement of older dwellings.

Modern dwellings are often placed prominently in exposed locations on ridge tops, on steep hillslopes, and in the middle of once productive agricultural fields, so as to achieve access to superior scenic views. Physical constraints have not been as much of an issue in recent years. Well drilling technology allows wells to be drilled hundreds of feet deep, so that houses need not be located close to springs. Some are built on fragile karst terrain\(^3\) with a high potential to pollute the groundwater-dependent water supply. Technologies like the bulldozer now make it possible to carve drives and building pads on steep, erodible mountainsides where it once would have been impossible to build. See Figures 15, 16, 17, and 20 for examples of the placement of newer dwellings.

Older dwellings are more often placed on more environmentally-prudent landforms than more modern dwellings. There are several good examples from this study of older dwellings seemingly placed with great care and knowledge of local conditions. These are described below:

1. In a family cluster located in the Blue Ridge of Carroll County on a low upland ridge, a "water witch," Garnett Pearman was interviewed. This retired well digger had sited all his childrens’ houses (between 1940 and 1960) on a flat-topped ridge, surrounding his 1930’s home, following branches of an underground stream. Mr. Pearman has worked in Carroll County all his life. Builders who have an intimate knowledge of the local landscape choose sites with physical opportunities and fewer environmental constraints,

\(^3\) Karst is a terrain of carbonate parent material and limestone soils. The drainage pattern is often subterranean, and there are sinkholes and underground streams which make karst areas potentially unstable places to locate structures.
such as areas on stable land with a good water supply and no chance of flooding or slipping soils. Further up Farmers Mountain from Mr. Pearman’s family cluster, several newer dwellings are placed at a high elevation where the ridge narrows. A predominant number of these are second homes placed in exposed locations, dependent on deep wells and subject to wind damage and erosion problems.

2. In the Ridge and Valley and the Great Valley, two different karst areas provide examples of older dwellings sited with intimate knowledge of the local landscape. First, in the Eggleston area of the Ridge and Valley Province in Giles County, a 1910 house was constructed on the edge of karst at the bottom of a hillslope. Surrounding this homeplace are modern houses and trailers located in the karst sinkhole field and up the steep hillslopes of Spruce Run Mountain. Second, in at Whitethorne in the Great Valley of Montgomery County, an 1840’s dwelling is located on an island of stable bedrock surrounded by terrace gravels deposited on top of the karst. Other more recent dwellings are scattered through the valley, several of them located directly over shifting karst topography. Figure 22 shows the Whitethorne karst valley with the more stable rock formation at the center of the photograph. Speaking of the Whitethorne house, geologist Bill Henika of the Virginia Division of Mineral Resources, theorizes that older houses were sited by people who worked the land and knew the locations of stable landforms. Modern houses often are sited by builders who do not have a clear sense of the local rock, soil, and water.

In all the provinces, high real estate value dwellings, often built by outsider builders, tended to be placed in exposed locations on excessive hillslopes with long views overlooking the New River and surrounding mountains. Figure 18 shows a series of dwellings overlooking the South Fork of the New River built by outside builders. Local builders’ dwellings and dwellings identified as low and moderate value were more inclined to be sited in less exposed positions in the landscape.
Technology as well as taste influenced the placement of newer dwellings: many of them are located near new roads. And due to the relatively recent capacity to scrape out flat pads on which to build or place trailers, more dwellings in all the provinces are located on steeper slopes. By far the majority of dwellings face the closest road. Of dwellings considered in this study, only a few, newer, houses of high real estate value, and a few older dwellings in proximity to relocated roads were not oriented toward the road.4

TRADITIONAL PLACEMENT OF DWELLINGS BY PROVINCE

For each province, based on the patterns of the older dwellings constructed by local builders, a traditional dwelling placement model can be outlined.

Blue Ridge and Great Valley

The Blue Ridge and Great Valley Provinces have similar cultural landscapes and a traditional model of dwelling placement. For this reason, the two provinces will be discussed together.

Traditionally in this region, dwellings are often placed in family clusters. The homeplaces are the lowest homes on a property, with newer houses and trailers advancing up slope. Often a barn is placed uphill from the older homeplace and the cemetery on a low ridge overlooking the family cluster. The traditional siting of dwellings is in protected coves and hollows, in inferior observer positions, without a view of the New River. Dwellings are not on excessive slopes, or crests, are oriented toward the closest public road, and are not located on prime agricultural soils.

4 Hollybush by Charles Martin investigates houses in a Kentucky hollow, describing how the older dwellings at the end of a hollow road were placed so that the road lead directly to the front of the house; other dwellings faced the road so their inhabitants could watch the passersby.
Adjacent to dwellings are cleared areas of lawn, gardens, and fields. Occasionally, in the Great Valley, a pre-World War II dwelling will be found on prime agricultural soils.

Ridge and Valley

This province’s linear landscape, with a high percentage of excessive relief, constrains its cultural landscape. As in the Blue Ridge and Great Valley, family clusters are common, but the clusters are strung along a valley bottom paralleling a road in order to accommodate the steep slopes. Again, the newer dwellings in a family cluster move uphill from the homeplace, often subdividing the original farm.

Traditionally, dwellings are placed in protected locations often on the footslopes of the mountains without a view of the river. Relief and observer position are variable. Springs are the traditional source of drinking water. The dwellings, as in the Blue Ridge and Great Valley Provinces, are oriented toward the closest road, adjacent to gardens and fields, and not on prime agricultural soils.

Alleghany Plateau

The Alleghany Plateau Province’s landscape is the most distinctive of the four provinces. The flat topped plateau’s deeply cut drainages have shaped a different landscape pattern than that of the Blue Ridge, Great Valley, and Ridge and Valley.

There are two traditional model locations for dwellings in this province: creekers and ridgers as the school-age children refer to them. This survey encountered a predominance of the latter. Creekers are located along hollows, such as Cain Branch or Adair Run, with an inferior observer position, on bottomland or footslopes, and on variable relief. The ridgers’ dwellings are located with a normal observer position, on subnormal or normal relief, in protected pockets of the plateau top, or against the backs of the plateau benches. In both locations, family clusters are not common, although families can be concentrated in a region. Dwellings are oriented to the
closest road, without a view of the river, and not on prime agricultural soils. New roads built to West Virginia Department of Transportation grade specifications (usually 8%), have opened up new land for development. Modern houses are often found along these new roads on excessively steep hillslopes.

CONCLUSION

The traditional cultural landscape along the New River in Appalachia left the high elevations, erodible soils, and fragile habitats open and undeveloped. Views from the river were left uninterrupted by the sight of residential structures, mostly as a by-product of cultural preferences and landscape constraints. As Goetcheus, Jackson, and Lewis suggest, designers and land planners should take care to respect the tradition of placing dwellings modestly in the landscape. In all the provinces, outsider builders’ dwellings showed a strong tendency to be placed high in the landscape on erodible hillslopes or fragile ridge crests, with long views out over the landscape. Not only do these dwellings have spectacular views, but everyone below has a view of them.

Newer dwellings located on high exposed slopes require more effort and money to gain access to and build, consume more resources to heat and cool, and require deeper (and more energy intensive) wells to tap water sources. Newer dwellings placed in sensitive environments, such as karst terrain and steep slopes, increase the possibility of environmental problems such as groundwater contamination and soil erosion. By departing from the traditional cultural landscape, the builders of these dwellings are creating aesthetic and environmental hazards.

In response to recent siting concerns, people have begun to step forward to address these hazards. At the first New River Roundtable Meeting held in December 1991 at Concord College in West Virginia, participants from local government agencies, the National Park Service, and grass-roots organizations from across the region indicated that they perceived the most pressing problem facing the New River to be lack of land-use planning and regulation. On the positive side, steps
have been taken in recent years to protect the New River: the New River Symposium has been celebrating the nature and culture of the river for over ten years; various sections have been designated Wild and Scenic Rivers; a segment of the New River in North Carolina was awarded special recognition as an Outstanding Resource Water in 1992; the National Committee for the New River has formed a land trust to protect lands along the river; and the Soil Conservation Service is producing a hydrologic basin study. But these efforts are just the beginning as residential pressure, as well as other land use changes, rapidly alters the New River's cultural landscape. Some areas are more threatened than others (the most threatened areas include those close to major roads and along the river sections designated as Wild and Scenic and as National Recreation Areas). However, land-use planning should be addressed along the entire river corridor, and professional planners and designers who have a sensitivity to benefits of traditional land use can offer their expertise and leadership.

Judging from the recent activity to protect the New River and the modern developments that take advantage of a river view, in the last several decades, more than ever before, people seem to consider the river side as a pleasant place to visit and live. With a "wise" development ethic and necessary land-use restrictions, the river could be enjoyed by present and future generations, marked by a respect for the physical environment and the cultural landscape which reflects it. In his work on the New River Parkway in the early 1990's, Will Shepherd, who before his death served as a Virginia Tech professor in the Landscape Architecture Program, outlined how the Parkway Authority could function as a regulatory agency to design, zone and manage the New River Corridor. Shepherd's vision is creative and radical in an area with no zoning, but holds much promise to protect this unique area and resource. Designers and land planners working with citizens groups (who often value private property rights), public agencies, county governments, and organizations like the New River Parkway Authority could help forge a consensus that the New River is a extraordinary place meriting special management attention. The land planning profession could help protect the distinctive character of the New River area by addressing site design and regional land use issues surrounding the river. Care needs to be taken to prevent new dwellings and development from spoiling the natural features and traditional siting of homes which make the New River Valley a significant, regionally - unique cultural
landscape.

If the information in this thesis proves useful to help guide a land development ethic along the New River corridor, the methods of this study could be used to study other regions where the cultural landscape may be changing. Other regions where land use pressures threaten to change patterns of cultural-environmental interactions, which may be seen as possessing inherent value aesthetically and environmentally, could benefit from study of the dynamics of cultural landscape and an identification of those elements worthy of preservation.
FIGURE 8
DWELLING SITES TEND TO BE SURROUNDED BY ORNAMENTAL PLANTINGS
Alleghany Plateau - Neponset, Fayette County
FIGURE 9
ORNAMENTAL SHRUBS, SPRING HOUSE, ROOT CELLAR AND TOOL SHED SURROUNDING TWO-HOUSE FAMILY CLUSTER
Blue Ridge - Fairview, Carroll County
FIGURE 10
LATE 1880’S FARM HOUSE NEXT TO A SPRING IN A PROTECTED LOCATION
WITHOUT A VIEW OF THE RIVER
Blue Ridge - Chestnut Hill, Ashe County
FIGURE 11
GUMP WILLIS’S FARM HOUSE AND HAND-DUG WELL
1901 House placed next to well head at bottom left corner of photograph
Alleghany Plateau - Bozoo, Summers County
FIGURE 12
EARLY 1900'S HOME PLACE
House placed on a protected shallow plateau bench above Adair Run surrounded by fields, apple trees and a magnificent stone wall
Alleghany Plateau - Adair Hollow, Mercer County
FIGURE 13
1800'S DOG TROT LOG CABIN
Cabin placed against the back of a plateau bench on Chestnut Ridge. The house is surrounded by a root cellar, spring house, corn crib, apple house and satellite disk.
Alleghany Plateau - Chestnut Ridge, Mercer County
FIGURE 14
GRAVEYARD ON HILL
Graveyard above dog trot log cabin with a view to the New River
Alleghany Plateau - Chestnut Ridge, Mercer County
FIGURE 15
1960'S RANCH-STYLE HOUSE ORIENTED TO CLOSEST ROAD
Great Valley - Long Shop, Montgomery County
FIGURE 16
1960'S TRAILER PLACED ALONG A NEW ROAD
The trailer overlooks Cane Branch Hollow. The older trailer resident said that she would prefer to live in the hollow, down low out of the wind of the hard cold winters.
Alleghany Plateau - Cane Branch, Fayette County
FIGURE 17

1960'S AND NEWER DWELLINGS ALONG RIVER

A Litton Bottom resident described his interpretation of why newer dwellings are sited along the river. He said that Claytor Lake Dam has stopped severe flooding, so now houses can be located along the bottoms below the dam.

Great Valley - Litton Bottom, Montgomery County
FIGURE 18
FLORIDA OUTSIDER’S SECOND HOMES ALONG THE SOUTH FORK
Often they have built on steep slopes orienting their house towards the river.
Blue Ridge - Chestnut Hill, Ashe County
FIGURE 19
HIGH APPARENT REAL ESTATE VALUE DWELLINGS
There is a dwellings of high real estate value placed on the high bluff in the top right corner of the photograph. Dwellings of high value are often placed with views of the river in exposed locations.
Blue Ridge - Along the South Fork, Ashe County
FIGURE 20
HOUSE ON STEEP SLOPE BUILT IN 1985 ALONG THE SOUTH FORK
The log cabin in front of the main house was moved to site.
Blue Ridge - Along the South Fork, Ashe County
FIGURE 21
THE SOUTH FORK HAS WITNESSED HEAVY DEVELOPMENT PRESSURE SINCE
THE RIVER WAS DESIGNATED WILD AND SCENIC IN 1976
The house on the steep slope was built in 1980's
Blue Ridge - Along the South Fork, Ashe County
FIGURE 22
THE 1840'S WHITETHORNE HOUSE IS PLACED ON A STABLE ISLAND OF SOLID ROCK
The site is surrounded by shifting karst terrain. The Whitethorne house is located at the center of the photograph.
Great Valley - Whitethorne, Montgomery County
APPENDIX A

DATA BASE VARIABLE DESCRIPTIONS

The following is a detailed description of the variables surveyed for each dwelling site. Unless otherwise indicated these variables have been entered into a data base for analysis.

Three hundred and twenty nine rural residential dwellings were sampled. They were either isolated dwellings or located in what appeared to be isolated family clusters.

INDEPENDENT VARIABLES - The variables divided builders into physiographic province, age, apparent real estate value, and origins of builder.

PROVINCE - Physiographic Province were identified by geomorphological characteristics. In the Appalachian Region along the New River there are four distinct areas: the Blue Ridge Province, the Great Valley, the Ridge and Valley and the Alleghany Plateau (Fenneman, 1938).

br - Blue Ridge Province
gv - Great Valley
rv - Ridge and Valley
ap - Alleghany Plateau

AGE -- PRE WORLD WAR AND POST WORLD WAR II- Originally the age of dwellings was to be determined by architecture style, but the measure proved too difficult. Instead of measuring age by style, the occupants of dwellings were asked the age of their dwellings. The year that the building was completed was recorded, and later re-categorized into Pre-World War I, Between the Wars, and Post-World War II. Architecture Through the Ages identified the world wars as highly significant in changing architecture, with such significant changes in architecture and throughout society these
periods seemed a natural breaking point to group ages of dwellings. "The First World War put an end to an epoch" (Hamlin 1953, p 626). "... the whole of life after the First World War was different in essence from what it had been before. The rapid mounting developments in industry and in science were inexorable forces: a growing population added to the building problems of the world; and the continuing impact of new materials and new building methods demanded architectural forms suitable to them. Change was to come, inevitably; social, economic, and industrial conditions saw to that. Thus, as the 1930’s saw an increasing acceptance of new architectural design, so also they witnessed a grudging but increasing acceptance of new architecture types by the people at large. During the 1940’s this process went on with ever increasing speed-aided perhaps by the unsettled conditions surrounding the Second World War-so that by the middle of the century, to all intents and purposes, what are generally termed modern architectural forms were accepted in all significant work" (Hamlin, 1953, p 629).

The year 1945 is the break between the Pre-and Post-World War II categories. Because there are so few Pre-World War II dwellings, only 92 dwellings of the 328 surveyed, often chi square tests have cells with expected counts of less than 5, therefore the chi-square test may not be a valid test. In the statistical analysis, except for the first chi square test between province and age, the two earlier periods are grouped together.

This research is a study of the existing landscape and not a comparison of historic landscapes and present landscapes. Older dwellings either were never built in the areas surveyed or were razed or disintegrated over time. All dwellings in an area were surveyed.

APPARENT REAL ESTATE VALUE OF DWELLING’S OCCUPANTS - Real estate value of dwellings was determined by the general appearance of dwelling and property, and personal interviews. The following criteria influenced the category in which a dwelling’s residents were identified: the size and materials of the primary structure; upkeep of the dwelling; if the dwelling was newly painted; and if the yard was clean and
orderly.

h - High
m - Moderate
l - Low

ORIGINS OF ORIGINAL BUILDER - A builder's place of upbringing may affect where and how they place their dwellings.
i - Outsider
l - Local

SECONDARY VARIABLES OF DWELLING PLACEMENT - Variables of dwelling placement categorize the siting of dwellings. There is a high degree of choice by the builder inherent in these variables, as well as physical constraints of the land.

ORIENTATION OF DWELLINGS - A dwelling's front door is often deliberately oriented towards specific landscape elements. The element which the front door faces is considered the element of orientation.
r - Road
r - New River
r, rive - Road and New River
v - View
other - Other elements in the landscape, which included solar, barns, and no apparent element (for example when a house is askew to the road with no significant view of the river, landscape or other buildings).

DWELLING'S VIEW OF NEW RIVER - View of the River from a dwelling site at any time of year. If the New River could be seen from a house the site was marked as having visual access.

T - True there is a view of the New River
F - False there is no view of the New River

DWELLING’S SOLAR ASPECT - Dwelling’s Solar Aspect is the solar orientation of the front door of each dwelling. A compass was used to determine all aspects and categorized as north, northeast, east, southeast, south, southwest, west or northwest.

n - North
ne - Northeast
e - East
se - Southeast
s - South
sw - Southwest
w - West
nw - Northwest

LANDFORM’S SOLAR ASPECT - The aspect of the landform on which a dwelling was located. Orientation of the landform’s general slope direction at each dwelling site was determined using a compass. A compass was used to determine all aspects, and categorized as north, northeast, east, southeast, south, southwest, west or northwest.

n - North
ne - Northeast
e - East
se - Southeast
s - South
sw - Southwest
w - West
nw - Northwest

OBSERVER POSITION OF DWELLING - The position of a dwelling in the landscape relative to its view of the surrounding landscape. For each dwelling observer position was categorized as superior (a view looking predominantly down on the landscape), normal
(a view looking equally down and up on the landscape) and inferior (with a view looking predominantly up to the landscape). The descriptive drawings in Figure 23 position were adapted from Burton Litton’s work on observer position.\(^5\)

- Superior - Looking down on the surrounding landscape.
- Normal - Looking equally down and up on the landscape.
- Inferior - Looking up on the surrounding landscape.

**SHAPE** - Shape of the Slope indicates whether land collects or spreads water depending on if its shape (concave or convex). Each terrain unit upon which a dwelling is placed was categorized as either collecting or spreading (see Figure 24).

- c - Collecting and concave
- s - Spreading and convex

**TERRAIN** - Terrain Types refers to landforms and the roll they currently play in the process of erosion. The sites were identified as depositional or erosional. Depositional terrains are areas where soil is collecting. Erosional terrains are areas where soil is wearing away and/or washing down slope. The terrain type of each dwelling site, indicating a landform’s place in the erosion process, was categorized as depositional or erosional.

- d - Depositional
- e - Erosional

**SLOPE OF SOIL UNIT** - Slope of soil unit from county soil survey. The degree of the slope categorized the percent of slope as steep, moderate or gentle.

- g - Gentle, 0 - 10%
- m - Moderate, 11 - 25%
- s - Steep, above 25%

---

RELIEF - The categories of relief indicate the differences in elevation of a dwelling site. More precisely, relief implies relative elevation and is defined as the elevations or inequalities of a land surface considered collectively. The categories of relief were adapted from the United States Department of Agriculture Soil Survey Manual. The categories of relief (normal, subnormal, excessive, and flat or concave) indicate the differences in elevation of a dwelling site. The descriptive drawings in Figure 25 explain the four relief categories.

DRINKING WATER SUPPLY - Drinking water source for original dwelling. Upon recommendation, one additional variable, dwelling’s water source, was added to the inventory data sheet after 153 dwellings were already sampled. The variable list is outlined in Appendix A. When data was entered into DBase IV, all dwellings with an unknown water supply were categorized as "u" for unknown. After the chi square comparison of province by water, the unknowns were excluded from the analysis.

   p - Pipe of utility water supply
   s - Spring
   w - Well

PRIME AGRICULTURAL SOILS - Prime agricultural soils were identified using the county soil surveys. When a county’s soil survey indicated "prime agricultural soils" or "prime farmland", those were categorized as prime agricultural soils. When a county’s soil survey did not indicate "prime agricultural soils" and used land capability classifications, all soils in the Class I and Class II categories were categorized as prime agricultural soils.

   T - True the soils are prime agricultural soils
   F - False the soils are not prime agricultural soils
   u - Unknown water supply
FIGURE 23
OBSERVER POSITION OF DWELLING
Adapted from a description of observer positions by Burton Litton
FIGURE 24
CATEGORIES OF SHAPE OF SLOPE
FIGURE 25
RELIEF CATEGORIES
APPENDIX B

DATA SHEET - SURVEY

Date __________ Time __________

Prov __________ County __________ Quad ________ House ________

Route __________ House visible 1Y 2N Income HIGH MEDIUM LOW

Informant: NEIGHBOR OWNER RENTER OTHER Builder: LOCAL IMMIGRANT

Remarks __________

HOUSE Elevation ______ Age ______

Materials ______ Architecture style ______

Observer position: 1INFERIOR 2NORMAL 3SUPERIOR View river: 1Y 2N

House orientation: 1ROAD 2VIEW 3WATER 4OTHER

Water: 1SPRING 2WELL 3UNKNOWN 4OTHER

LANDFORM Soil survey page ______ Soil No. ______ Remarks ______

Location on soil unit: 1TOP 2MIDDLE 3BOTTOM

Slope shape: 1COLLECTING 2SPREADING 3DEPOSITIONAL 4EROSIONAL

Relief: 1NORMAL 2SUBNORMAL 3EXCESSIVE 4FLAT 5CONCAVE

Landform solar aspect: N NE E SE S SW W NW

1 2 3 4 5 6 7 8

House solar aspect: N NE E SE S SW W NW

1 2 3 4 5 6 7 8

Soil name ______ Slope gradient ______

Landform association ______ Parent material ______

Other Comments ______

Landcover - near, middle, far

THE 1976 USGS LAND USE AND LAND COVER

CLASSIFICATION

<table>
<thead>
<tr>
<th>Level I</th>
<th>Level II</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Residential</td>
</tr>
<tr>
<td>2</td>
<td>Agricultural Land</td>
</tr>
<tr>
<td>3</td>
<td>Rangeland</td>
</tr>
<tr>
<td>11</td>
<td>Commercial and Services</td>
</tr>
<tr>
<td>12</td>
<td>Transportation, Communications, and Utilities</td>
</tr>
<tr>
<td>13</td>
<td>Industrial</td>
</tr>
<tr>
<td>14</td>
<td>Ornamental Horticultural Areas</td>
</tr>
<tr>
<td>15</td>
<td>Confined Feeding Operations</td>
</tr>
<tr>
<td>16</td>
<td>Other Agricultural Land</td>
</tr>
<tr>
<td>17</td>
<td>Other Urban or Built-up Land</td>
</tr>
<tr>
<td>21</td>
<td>Cropland and Pasture</td>
</tr>
<tr>
<td>22</td>
<td>Other Rangeland</td>
</tr>
<tr>
<td>31</td>
<td>Herbaceous Rangeland</td>
</tr>
<tr>
<td>32</td>
<td>Shrub and Brush Rangeland</td>
</tr>
<tr>
<td>33</td>
<td>Mixed Rangeland</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Anderson et al. 1975. 77 Mixed Barren Land
## APPENDIX C

USGS TOPOGRAPHIC 7.5 MINUTE MAPS AND USDA SOIL CONSERVATION SERVICE SOIL SURVEYS

<table>
<thead>
<tr>
<th>COUNTIES</th>
<th>SOIL SURVEYS</th>
<th>QUADRANGLE</th>
<th>PROVINCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORTH CAROLINA</td>
<td></td>
<td></td>
<td>BLUE RIDGE</td>
</tr>
<tr>
<td>Ashe</td>
<td>*</td>
<td>Mouth of Wilson - Ashe, Alleghany, Grayson</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sparta West - (unavailable)</td>
<td></td>
</tr>
<tr>
<td>Alleghany</td>
<td>old</td>
<td>Sparta East - Alleghany, Grayson</td>
<td></td>
</tr>
<tr>
<td>VIRGINIA</td>
<td></td>
<td></td>
<td>GREAT VALLEY</td>
</tr>
<tr>
<td>Grayson</td>
<td>no</td>
<td>Briarpatch Mountain - Grayson</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Galax - Grayson, Carroll</td>
<td></td>
</tr>
<tr>
<td>Carroll</td>
<td>*</td>
<td>Austinville - Carroll, Wythe</td>
<td></td>
</tr>
<tr>
<td>Wythe</td>
<td>no</td>
<td>Max Meadow - Wythe</td>
<td></td>
</tr>
<tr>
<td>Pulaski</td>
<td>*</td>
<td>Fosters Fall - Wythe, Pulaski</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sylvatus - (unavailable)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hiwassee - Pulaski</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dublin - Pulaski</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radford South - Pulaski</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radford North - Pulaski, Giles, Montgomery</td>
<td></td>
</tr>
<tr>
<td>Giles</td>
<td>*</td>
<td>Eggleston - Giles</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pearisburg - Giles</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Narrows - Giles</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peterstown - Giles, Mercer, Monroe, Summers</td>
<td></td>
</tr>
<tr>
<td>WEST VIRGINIA</td>
<td></td>
<td></td>
<td>A L L E G H A N Y PLATEAU</td>
</tr>
<tr>
<td>Mercer</td>
<td>*</td>
<td>(see Peterstown)</td>
<td></td>
</tr>
<tr>
<td>Monroe</td>
<td>*</td>
<td>(see Peterstown)</td>
<td></td>
</tr>
<tr>
<td>Summers</td>
<td>*</td>
<td>Lerona - Summers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Forest Hill - Summers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pipestem - Summers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hinton - Summers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Talcott - Summers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Meadow Creek - Summers, Raleigh, Fayette</td>
<td></td>
</tr>
<tr>
<td>Raleigh</td>
<td>*</td>
<td>Prince - Raleigh, Fayette</td>
<td></td>
</tr>
<tr>
<td>Fayette</td>
<td>*</td>
<td>Thurmond - Fayette</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fayetteville - Fayette</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Beckwith - Fayette</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gauley Bridge - Fayette</td>
<td></td>
</tr>
</tbody>
</table>

98


United States Dept. of Agriculture, Soil Conservation Service in cooperation with West Virginia Agricultural Experiment Station, *Soil Survey of Monroe County, West Virginia*, Issued February 1965.


VITAE

EDUCATION

Masters of Landscape Architecture
Virginia Polytechnic Institute and State University; 1994

Bachelor of Arts in Comparative Religion, Concentration in Biology
University of Virginia; 1984

DESIGN AND PLANNING EXPERIENCE

PLANNING TECHNICIAN, Thomas Jefferson Planning District Commission, Charlottesville, Virginia; 6/93 - present.

COMMUNITY PLANNER, Virginia Tech Community Design Assistance Center, Blacksburg, Virginia. Projects include:

The Virginia Open Space Handbook and Montgomery County Open Space Plan
An open-space land-use project for the New River Valley Planning District Commission, Radford, Virginia; 1/91 - 3/94.

White Sulphur Springs Downtown Revitalization Project
A Main Street USA project for White Sulphur Springs, West Virginia; 10/90 - 11/90.

Matewan Town Revitalization Project
An urban design project for the Matewan Economic Development Commission, Matewan, West Virginia; 1/90 - 6/90.

GRADUATE RESEARCH ASSISTANT, Virginia Tech Department of Landscape Architecture, College of Architecture, Blacksburg, Virginia.

Research Project for Appalachian Power Company; 10/90 - 6/91.

Research Project for Appalachian Power Company; 1/89 - 1/90.

COMMUNITY PLANNER, Hill Studio, Roanoke, Virginia; 6/90 - 9/90.

VIRGINIA ORGANIZER, Arcs, Inc.; 1/92 - 11/92.

MARKETING STUDY ANALYST, Allegheny County, Covington, Virginia; 7/91 - 10/91.

LANDSCAPE ARCHITECT, Eagles Nest Garden Center, Charlottesville, Virginia: 3/94-present.
HORTICULTURE AND LAND MANAGEMENT EXPERIENCE

LANDSCAPE CONTRACTOR, Virginia and West Virginia; 1/87 - present.


ESTATE MANAGER, Balmullo Farm, Charlottesville, Virginia; 4/86 - 1/87.

GARDENER, Thomas Jefferson Memorial Foundation, Charlottesville, Virginia; 8/86 - 12/86.

OTHER ACTIVITIES

PRESENTER "Appalachian Site Planning Along the New River" at the New River Symposium, National Park Service, Beckley, West Virginia; 4/92.

BOARD MEMBER AND BLUESTONE PROJECT COMMITTEE CHAIR, National Committee for the New River; 1/92 - present.

BOARD MEMBER, Arcs, Inc., a ten county, regional environmental organization; 10/91 - present.

BOARD MEMBER AND EDUCATION CHAIR, Citizens Organized for the Protection of the Environment in Giles County; 8/91 - present.

COURT SQUARE DANCERS, Charlottesville, Virginia; 10/86 - 8/88

CERTIFIED MASTER GARDENER, Charlottesville, 4/85.

GEORGIA AMBASSADOR TO INDIA, Georgia Cooperative Extension Service; 8/85 - 5/86.