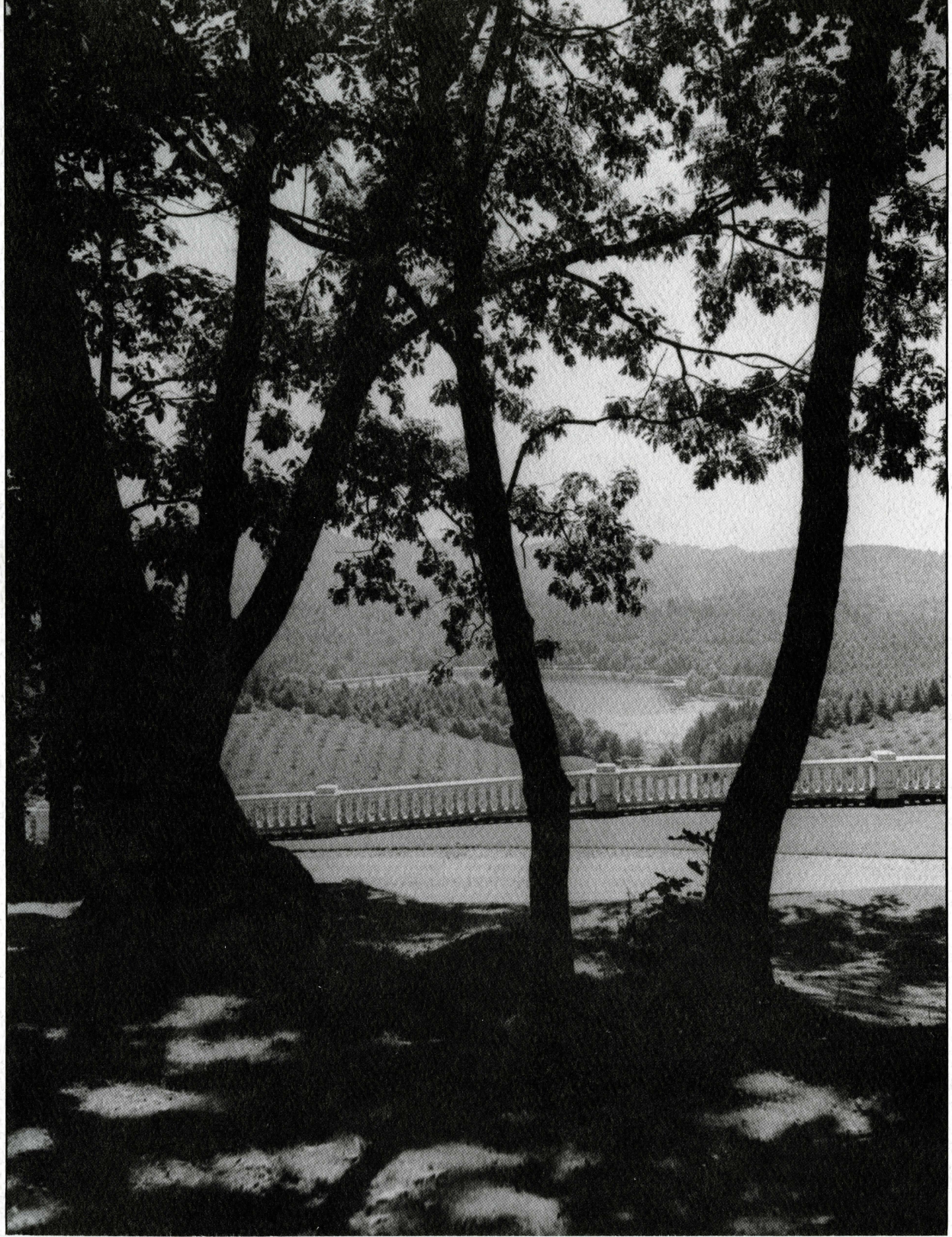


MOSES H. CONE MEMORIAL PARK

CULTURAL LANDSCAPE REPORT

BLUE RIDGE PARKWAY,
NORTH CAROLINA

U.S. Department of the Interior
National Park Service
Southeast Region
Cultural Resources Planning Division

015543

MOSES H. CONE MEMORIAL PARK
A CULTURAL LANDSCAPE REPORT

BLUE RIDGE PARKWAY

August 1993

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Southeast Regional Office
National Park Service, Department of the Interior

Foreword

We are delighted to present for public distribution another in our series of reports concerning culturally significant landscapes in National Park Service units of the southeastern United States. The Moses Cone Estate contains one of the many important historic landscapes along the Blue Ridge Parkway and could easily stand alone as an independent park if it were not attached to the Parkway. This study represents one of the early fruits of a commitment undertaken several years ago by the Southeast Regional Office of the National Park Service to provide sound professional guidance to park units as they seek to maintain the landscape treasures entrusted to them. It is interesting to note that two of the graduate students who assisted with this project are now employees of the Regional Office, and our hope is that we will be able to continue to build our in-house expertise in this critical resource area. We are grateful to Ian Firth for his personal interest and dedication to this project, as well as for the exceptional quality of his research, and to the University of Georgia for their cooperation in bringing this project to fruition.

Kirk A. Cordell
Chief, Cultural Resources Planning Division
Southeast Region
National Park Service
August 1993

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This report was commissioned by the NPS Southeast Regional Office. Kirk A. Cordell, Chief, Cultural Resources Planning Division, acted as the Government Technical Representative and reviewed the interim and final reports with the assistance of the staff of the Office of Cultural Resources. Darrel Morrison, Dean, School of Environmental Design, UGA, was the University's coordinator.

INTRODUCTION

MOSES H. CONE MEMORIAL PARK

The Moses H. Cone Memorial Park (Park) is located on the north side of the city of Blowing Rock in Watauga County, North Carolina, and lies between mile posts 292 and 295 on the Blue Ridge Parkway, see map 1. It is a designed historic landscape, 3,516 acres in extent, administered by the National Park Service (NPS) as part of the Blue Ridge Parkway (Parkway). By the terms of acquisition, its official name is the "Moses H. Cone Memorial Park," but it is often referred to as the "Cone Estate." In the past it was known as the "Flat Top Manor Estate" or the "Flat Top Manor Orchard and Stock Farm." All of these names will be used in this report.

HISTORY OF OWNERSHIP AND ADMINISTRATION

The Park is an example of a Country Place Era estate. Around the turn of the century a new urban class of prosperous manufacturers, traders, bankers, and professionals was moving to the country. While they usually retained city houses close to their places of business, they built large, even palatial, homes in the country, to which they could retire for rural recreation. This historical context is described more fully in Chapter 4.

Moses Cone, who had made a fortune in the textile trade, began to buy tracts of land to form his estate in 1893 (Buxton 1987, p. 1). Most of the land was in his ownership, when he began to build his Manor House in 1899. The estate continued to grow until his death in 1908. Moses Cone had no children and died intestate. By the terms of a 1911 settlement, Flat Top Manor was to be transferred to the Moses H. Cone Memorial Hospital in Greensboro, North Carolina, upon the death of his widow, Bertha Lindau Cone. The estate was to be known as the Moses H. Cone Memorial Park and was to be managed as a park and pleasure ground for the public (Indenture 5/30/1911).

Bertha Cone continued to reside on the estate each summer until her death in 1947. Subsequently, the trustees of the hospital, concerned that the costs of maintaining the park would drain their resources and aware of proposals to route the Blue Ridge Parkway through the estate, obtained a declaratory judgement from the Supreme Court of North Carolina allowing them to transfer the property to the United States of America. In January, 1949, the estate became part of the Parkway. Under the terms of the indenture, the NPS assumed the obligations of the hospital under the 1911 settlement and agreed to maintain the Cone Cemetery on Flat Top Mountain, to keep open and maintain a system of roads on the estate equal in extent to the system then in operation, and to develop the park in accordance with an agreed master plan (Indenture 1/21/1949). In the 1950s the Parkway was constructed through the Cone Estate and the adjacent Julian Price Estate which was also acquired.

The NPS subsequently entered into a number of agreements, whereby the Manor House is used as a Craft Center by the Southern Highlands Handicraft Guild, and a number of the pastures and meadows on the estate are used by local people for grazing cattle and horses and for growing hay.



Photograph 1
Moses H. and Bertha L. Cone
Date and site unknown
BRP negative #6403

Objectives of This Study

> "The legislated purpose of the Blue Ridge Parkway under the Act of June 30, 1936, is to link Shenandoah National Park in Virginia and Great Smoky Mountains National Park in North Carolina and Tennessee by way of a recreationally oriented motor road. Under the provisions of the Act of Congress approved August 25, 1916 (39 Stat. 535), the intended purpose of the Blue Ridge Parkway is that of an elongated park for public use and enjoyment. It also is intended to conserve and interpret the unique natural and cultural resources of the Southern Appalachian Highlands, as well as provide for leisure motor travel through a variety of environments."
>
> (Blue Ridge Parkway Statement for Management 1989)

The Park is one of the unique cultural resources of the southern Appalachians. However, it has proved to be impossible to maintain the estate in its historic condition, and over the past forty years the landscape has undergone major changes. These changes have made it difficult for visitors to understand or appreciate the historic character of the estate.

The objectives of this Cultural Landscape Report are to identify, evaluate, and determine appropriate management options for the Cone Estate. The study collects, presents, and evaluates documentary and field survey findings on the historic characteristics of the landscape. Particular attention was paid to the twenty-four miles of carriage roads on the site, the abandoned apple orchards, and the problems of vegetation management throughout the estate (Cooperative Agreement CA 5000-8-8009, Subagreement 2, Scope of Work). An earlier Historic Resource Study and Historic Structure Report focused on the Manor House and other structures on the estate and the history of the Cone family (Buxton 1987).

Project Methodology

The documentary research and field work for this study were done between October 1988 and September 1989. The findings are presented under the following six headings:

The Present Landscape - an inventory of the landscape features and land uses on the estate, based on a study of available maps and aerial photographs and field investigations.

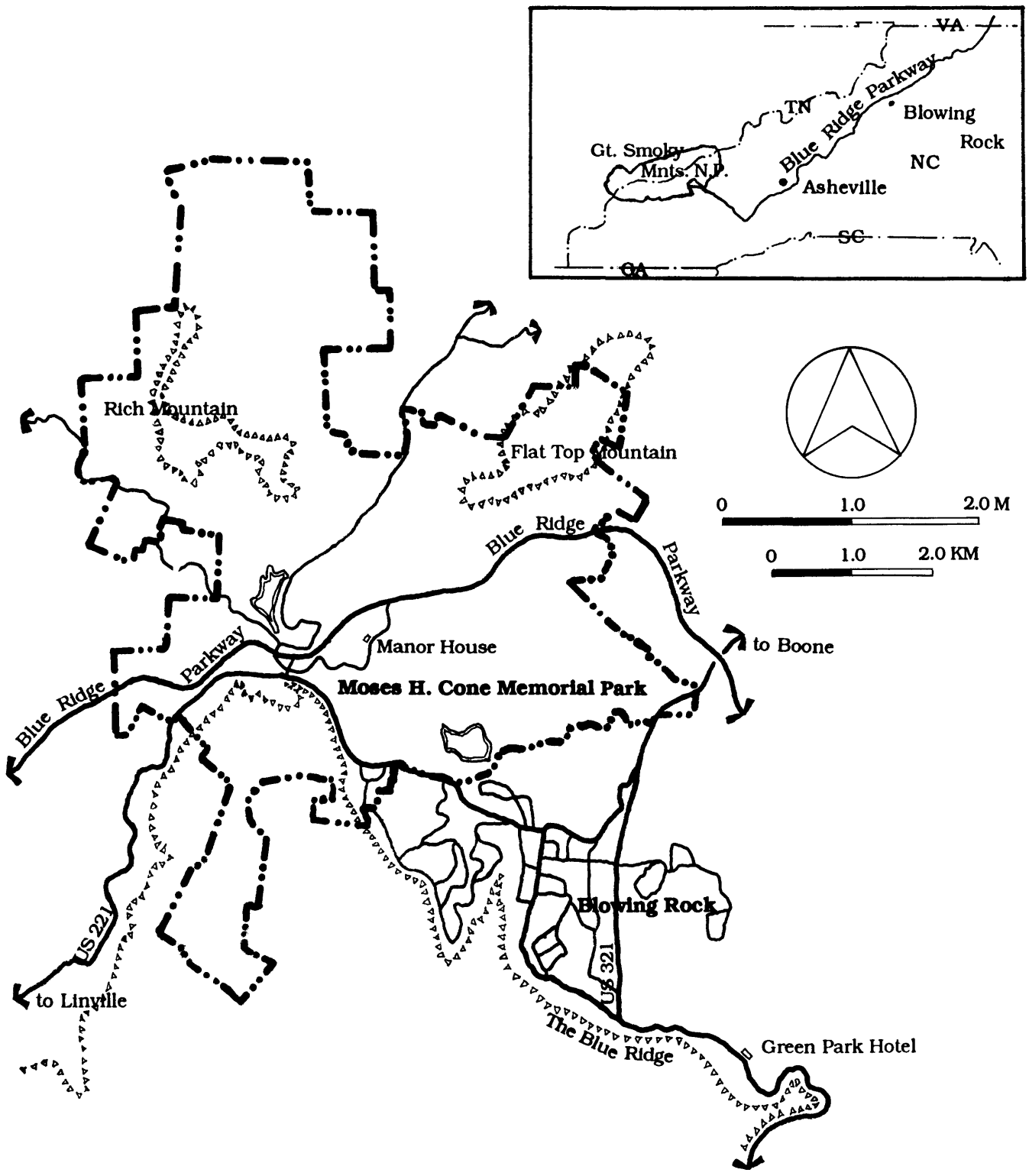
The Historic Landscape - a description of the physical characteristics of the estate during the lives of Moses and Bertha Cone, based on an analysis of documents, maps, photographs, oral histories, published accounts and field investigations.

Changes Over Time - an evaluation of the integrity of the landscape using the criteria of the National Register of Historic Places.

Historical Significance - an assessment of the significance of the estate using National Register criteria.

Management Alternatives - an evaluation of management options based on *The Secretary of the Interior's Standards for Historic Preservation Projects*.

Recommendations - a list of appropriate landscape management strategies.



Moses H. Cone Memorial Park

Map 1

Location Maps

drawn by: LS checked by: IJWF
date: 9/30/89

CHAPTER ONE

THE PRESENT LANDSCAPE

SOURCES

The principal features of the present landscape are shown in maps 2, 3, and 4. These maps have been compiled from the following sources:

> Color aerial photographs dated May 16, 1979, at a scale of 1"=500' in the Blue Ridge Parkway collection were the primary source of information.
>
> The topography was copied from U.S. Geological Survey maps--the Boone and Globe quadrangles published in 1978 and 1959 at a scale of 1:24,000.
>
> Field surveys were carried out in 1989 to check the position of carriage roads and field boundaries, and to identify vegetation communities.

MOUNTAINS AND STREAMS

The Park occupies the slopes of Flat Top and Rich Mountains above the Blue Ridge. The observation tower on the summit of Flat Top stands at 4558 feet above sea level. The lowest point in the park is on a branch of China Creek, on the scarp face of the Blue Ridge, and lies at 2720 feet, thus there is a change in elevation of over 1800 feet within the park. The Manor House, in the center of the estate, sits at 4000 feet. This elevation gives the area a cool summer climate, one of the main attractions for the Cones. The 1911 indenture establishing the park referred to the "salubrious and invigorating effect of the climate" (Indenture 5/30/1911).

The mountains are composed largely of a fine-grained schist, which outcrops on some of the steep slopes. These slopes have been bisected by the headwaters of the Johns and New Rivers. China Creek runs south from the Blue Ridge to join the Johns River. Flannery Fork runs north between Rich Mountain and Flat Top to join the New River. These headwaters have been dammed to form three lakes within the park. Trout Lake and Bass Lake are now dry awaiting reconstruction of their earthen dams. The reservoir on Flat Top Branch at the edge of the park supplies water to the city of Blowing Rock.

FORESTS

About 90 percent of the Park has a cover of trees. The varying composition and age structure of these forests reflects both the physiography and their land use history. Mature stands of native hardwoods occupy much of the area. On the ridges, oaks, including northern red oak (*Quercus borealis*), black oak (*Q. velutina*), chestnut oak (*Q. prinus*), and white oak (*Q. alba*) dominate. On the mountain slopes the composition becomes

more diverse, and hickories, including pignut hickory (*Carya glabra*), are co-dominants. In the moist coves tulip poplar (*tulipifera*), white ash (*Fraxinus americana*), red maple (*Acer rubrum*), basswood (*Tilia heter-ophylla*), and fraser magnolia (*Magnolia fraseri*) are important species, but the most noticeable trees are the large hemlocks (*Tsuga canadensis* and *T. caroliniana*), see photograph 2.

In the southeastern sector of the park, around Bass Lake, there are some stands of white pine (*Pinus strobus*). These can easily be recognized as plantations as each stand is even-aged, and the spacing of trees within a stand is fairly uniform. The pines are between sixty and ninety years of age (White 8/22/89). There is an understory of hardwoods within the stands, but most of the saplings appear to be no more than thirty to forty years old.

Throughout the park are pockets of second-growth woodland. These have a similar composition to the adjacent forests, except next to the pine plantations, but they can usually be distinguished by their age structure. Most are dominated by forty year old trees. Some of these woodlands contain old apple trees, which bear witness to their origin as abandoned orchards. Scattered throughout these second growth stands are old building sites marked by foundations and the remnants of abandoned gardens.

FIELDS

Nearly 8 percent of the Park is in open fields which are being used by local farmers either for summer grazing or hay production. The principal meadow is on the shoulder of Flat Top Mountain. On one side of the meadow partially hidden by groups of trees--Fraser firs (*Abies fraseri*) and Norway spruces (*Picea abies*) -- lies the Cone Cemetery. The most extensive



Photograph 2
Trout Lake Road
Date July 1989
Photographer Ian Firth

pastures are on Rich Mountain, but they are in poor condition, and large areas are reverting to second growth woodland. An abandoned apple orchard between Bass Lake and the Manor House Craft Center also is being used as a pasture. Grazing cattle have kept the invading forest from completely taking over this orchard, so in places rows of old apple trees remain in the open.

ROADS

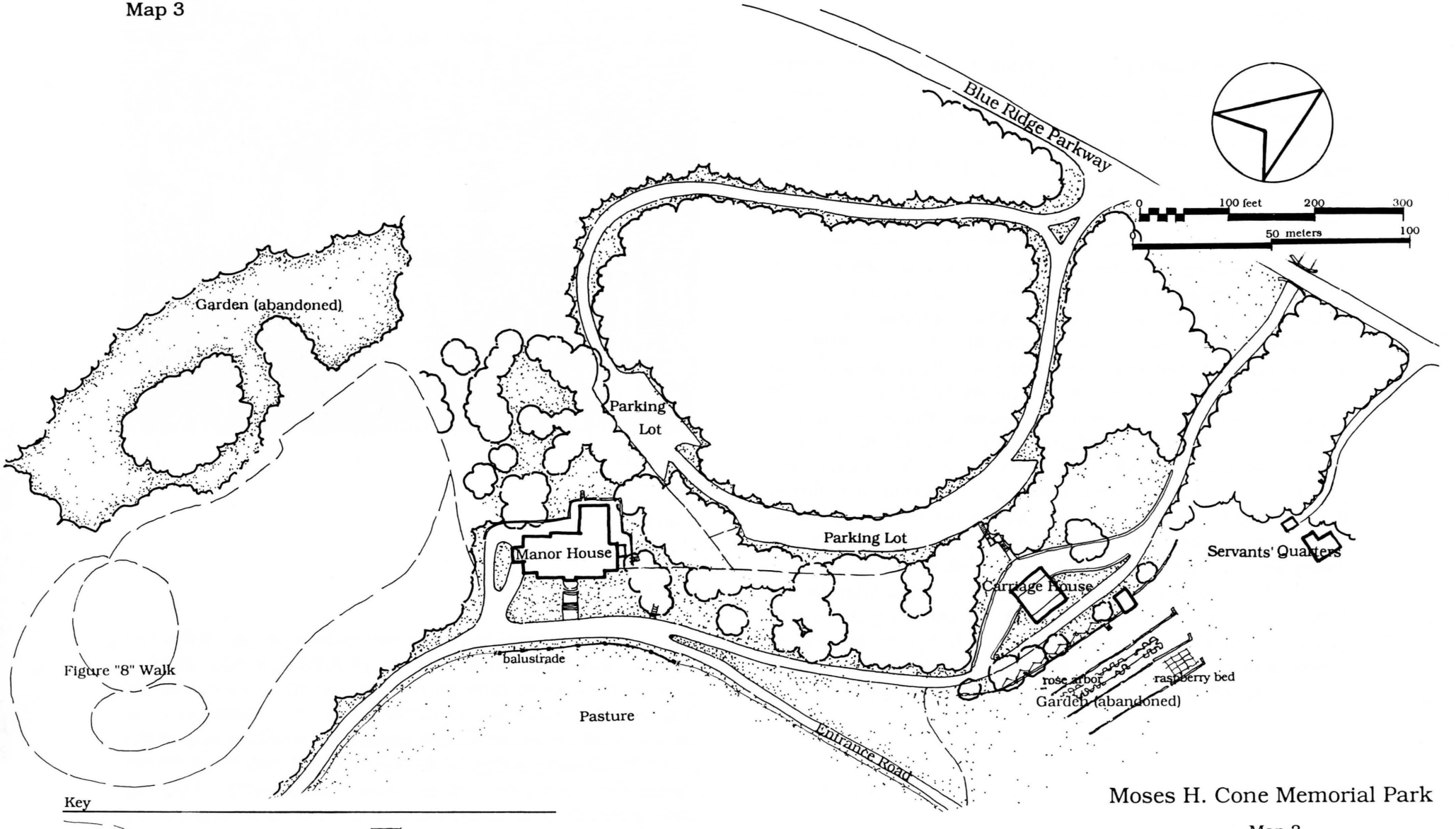
The Blue Ridge Parkway bisects the Park. At Sandy Flat it connects with U.S. Route 221, which runs through the southwestern corner of the park. An underpass at Sandy Flat links Route 221 to Shulls Mill Road, which follows the western boundary of the Park, and Flannery Fork Road, which follows the stream between Rich and Flat Top Mountains. This underpass provides one of the entrances to the park from the Blue Ridge Parkway; at the junction of Shulls Mill and Flannery Fork Road, a one-way road leads to a parking lot beside Trout Lake. The other entrance to the park from the Parkway lies 5/8ths of a mile to the northeast, where a loop road leads to a parking lot behind the Manor House Craft Center, see map 3.

Within the park there are over twenty-one miles of estate roads to which access is restricted, see photographs 2 and 3. The short road from Sandy Flat to the Manor House has been paved, but the remainder are earthen roads. An underpass below the Parkway near the Manor House links the roads on Flat Top and Rich Mountains to the roads on the rest of the estate. Another underpass allows an estate road to cross below Route 221. Throughout the park the remains of other roads can be found, overgrown, but still visible as terraces on the steep slopes. Most of the estate roads have a low gradient and many switchbacks, and for mile upon mile they are lined with rhododendrons (*Rhododendron maximum* and *Rhododendron catawbiense*) and mountain laurels (*Kalmia latifolia*). Around Bass Lake and in the adjacent white pine plantations, there are also broken avenues of sugar maples (*Acer saccharum*) and tulip poplars, see map 4.



Photograph 3
Entrance Road beside abandoned orchard
Date January 1990
Photographer Lucy Lawliss

Map 3



Source: color aerial photographs dated 5/16/79 & field investigations.

Moses H. Cone Memorial Park

Map 3

The Manor House Area 1980

drawn by: JM & LL checked by: IJWF
date: 9/30/89

BUILDINGS

There are four buildings dating from the beginning of this century remaining in the park--each is described in the Historic Structure Report (Gilbert and Swanson in Buxton 1987). Flat Top Manor House is a mansion in the colonial revival style begun in 1899, see photograph 4. Situated at the head of a valley, it commands an extensive view to the southeast across Bass Lake. Nearby the Carriage House is a two-story structure with stables under the carriage storage space, see photograph 5. Ramps on the west side provide access to the upper level. Below this building there is a flight of terraces retained by dry stone walls. A rose pergola in the middle indicates that this area was once a garden. Close by, the old Servants' Quarters, now a ranger's residence, overlooks a fenced pasture, see photograph 6. This structure was moved to this site from its original location behind the Manor House. The Apple Barn is some distance away on the edge of one of the pockets of second growth woodland, which used to be an apple orchard, see photograph 7. A fifth historic building, which was once part of the estate but which is not now part of the park, lies beside Route 221 at Sandy Flat. This is the Old School House, now the Sandy Flat Baptist Church, see photograph 8.

The other buildings within the park were constructed by the NPS in the 1950s and 1960s. There are two rangers' houses beside the estate road leading from Sandy Flat to the Manor House, and on the other side of the Sandy Flat junction lies a Parkway ranger's station and maintenance compound.



Photograph 4
Manor House
Date April 1990
Photographer Butler

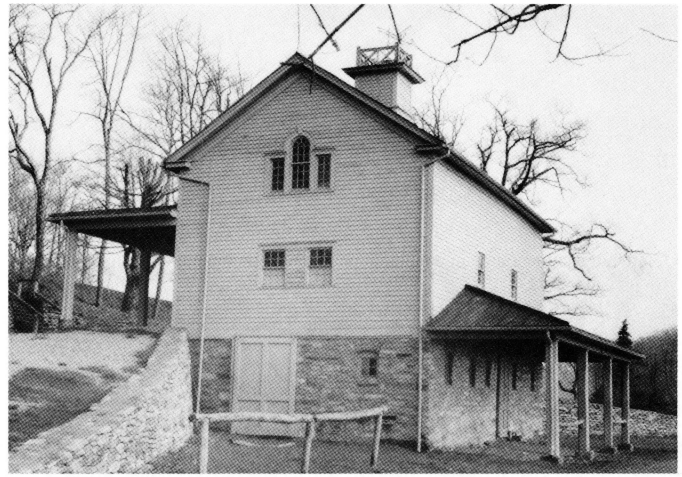
LAND USES

It has been estimated that over two million people visited the Park in 1987 (Blue Ridge Parkway [B.R.P.] 2/9/88). Most of those visitors drove through the park on the Parkway which only provides brief glimpses of the estate. The Craft Center is the major advertised attraction inviting motorists to stop at the park. The Southern Highlands Handicraft Guild's Craft Center shares the ground floor of the Manor House with a Parkway Information Center. The Craft Center provides an opportunity for visitors to buy handcrafted items and to watch craft demonstrations.

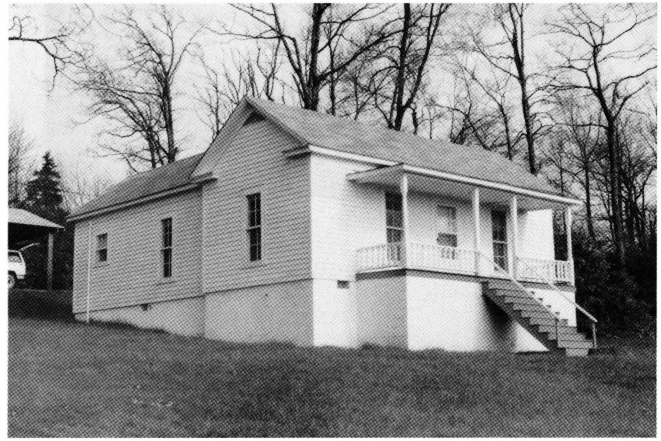
Some of those who stop while driving along the Parkway go for walks along the estate roads. But many of the users of the park, beyond the environs of the Manor House, are people staying in Blowing Rock or Boone (B.R.P. 2/9/88). There is an entrance to the park at Bass Lake, which is much used by people from Blowing Rock coming to walk or jog. In addition to this use by individuals, the park is used more and more by local and regional organizations for activities such as road races (Redmon 9/8/89). Park roads are also intensively used by riders on horseback. There are stables next to the park, and riders can enter the park using the estate road which passes beneath Route 221. During the summer season over one hundred horse riders have been counted using the park in a single day (Redmon 9/8/89).

Other recreational activities include fishing and nature study. Until the lakes were drained they attracted many fishermen. Trout Lake, which was stocked by the NPS, was particularly popular. The relatively undisturbed character of the forest and the mix of other habitats gives the park considerable interest for botanists and ornithologists. Educational institutions, including Appalachian State and Duke Universities and local schools, make occasional use of the place for field classes.

The NPS distributes a pamphlet outlining the history of the Cone Estate, and there are interpretive signs at the Manor House and the Bass Lake Entrance. But none of these give much information on the historical character and significance of the landscape. This aspect of the estate probably plays little or no role in visitors' appreciation of the place.



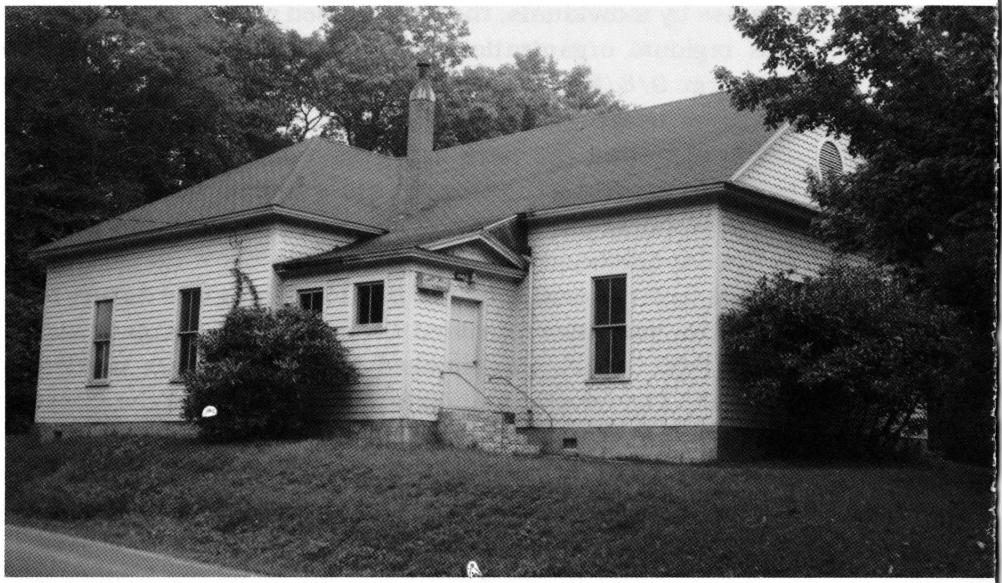
Photograph 5
Carriage House
Date April 1990
Photographer Butler



Photograph 6
Servants' Quarters
Date April 1990
Photographer Butler

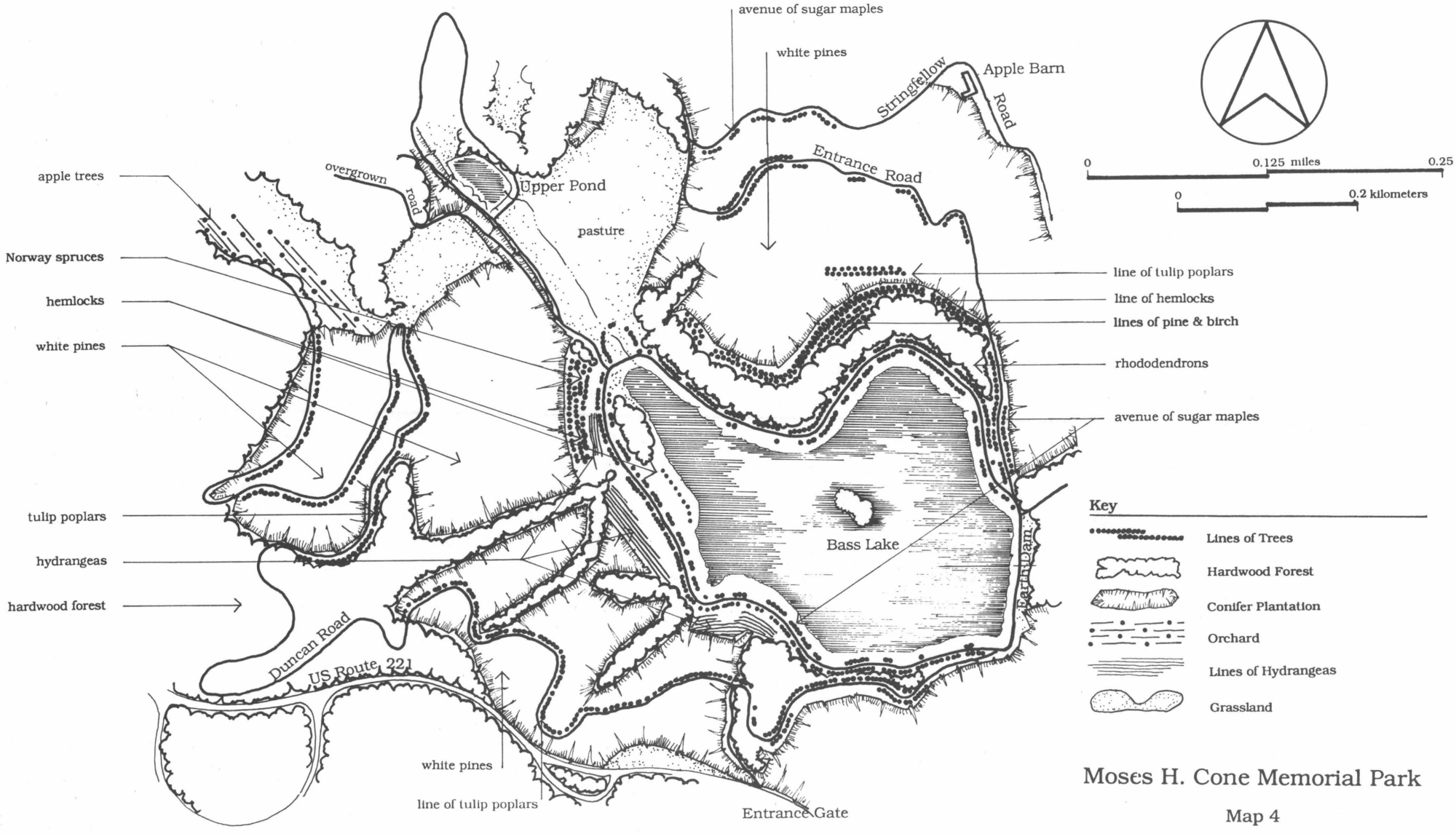


Photograph 7
Apple Barn
Date April 1990
Photograph Butler



Photograph 8
Sandy Flat Baptist Church
Date 1973
BRP negative #2663

Map 4



Sources: color aerial photographs dated 5/16/79; B.R.P. surveys & drawings; & field investigations.

Moses H. Cone Memorial Park

Map 4

The Bass Lake Area 1980

drawn by: JM & LL checked by: IJWF
date: 9/30/89

CHAPTER TWO

THE HISTORIC LANDSCAPE

The Historic Period

The landscape of the Park has evolved over many decades. In the nineteenth century the area had been settled, land was cleared for subsistence agriculture, and some of the resulting field patterns probably remain to this day. But acquisition by Moses Cone initiated a period of rapid change. In the fifteen years between his first land purchase and his early death in 1908, the landscape was transformed by an enormous investment in construction and planting. Following his death his widow, Bertha Lindau Cone, managed the estate conservatively. She introduced no major changes, and the estate became a memorial to her husband. The heyday of the estate probably was reached in the 1920s after the plantings had begun to mature and before the Depression caused a cutback in maintenance operations (Downs 11/21/75). By the 1940s there were signs of neglect, but the estate continued to function until Bertha Cone's death in 1947.

The historic period therefore is defined as 1893 to 1947. However, within this period the first fifteen years may be regarded as the most important, as most of the construction and planting took place at that time. Where possible a distinction is made in this report between those features originating before Moses Cone's death and those which came later.

Sources

This account of the landscape during the historic period (1893-1947) is based on the following sources:

> The Blue Ridge Parkway collection of Moses H. Cone Documentary Materials comprises some 134 items. One of the most useful documents is a diary kept by F. L. Mulford between November 1899 and October 1900. Mulford was a superintendent with particular responsibility for the orchards. The diary is accompanied by detailed maps of the orchards in 1900. Other documents in the collection include ledgers, payroll records, and invoice books for various years between 1899 and 1947. There are twenty-eight pages of letters from Bertha Cone to E. G. Underdown who succeeded Mulford as orchard superintendent. These letters, written between October 1913 and November 1914, give some insight into her role in the operation of the estate. Unfortunately the only documents authored by Moses Cone are some brief memorandums addressed to J. D. Brown, a farm foreman, during a three week period in October 1904. There are no documents which explain Moses Cone's ideas and plans for his estate. The collection includes a number of horticultural and farm journals from the historic period. One of these--a

bound copy of the *Rural New Yorker* for 1898--appears to be annotated in Moses Cone's handwriting. A map of the estate was drawn in 1909 by W. G. Potter, Civil Engineer of Greensboro, North Carolina, at a scale of 1 inch to 400 feet. Black and white aerial photographs were taken for the Soil Conservation Service on October 21, 1940. Prints at a scale of 1" to 660' are in the Blue Ridge Parkway's collection of photographs. Some photographs taken by visitors to the estate in the 1930s and 1940s are also available in the Blue Ridge Parkway's collection. Former employees of the estate and others who could remember it during the historic period were interviewed. Several of those interviews were conducted by Blue Ridge Parkway personnel in 1975 and 1980. Field surveys were carried out in 1988 and 1989 to cross-check information obtained from the sources listed above. Detailed surveys were made of the road system (to determine construction details, planting patterns, and the sequence of views), of the abandoned orchards (to collect information on composition, organization, and management), and of the conifer plantations (to determine age and condition). Secondary sources included: accounts of the estate in newspapers and journals; standard texts on road construction and orchard management published in the historic period; reports of the State Board of Agriculture for North Carolina; and the 1987 Historic Resource Study.

LANDSCAPE COMPONENTS

The principal features of the landscape in the historic period are shown in maps 5, 6, 7, and 8, and photograph 9. The landscape can be subdivided into the following components: carriage roads; orchards; pastures and meadows; forests, deer parks, and plantations; lakes and ponds; and buildings and gardens. The physical characteristics of each of these components are described in this chapter.

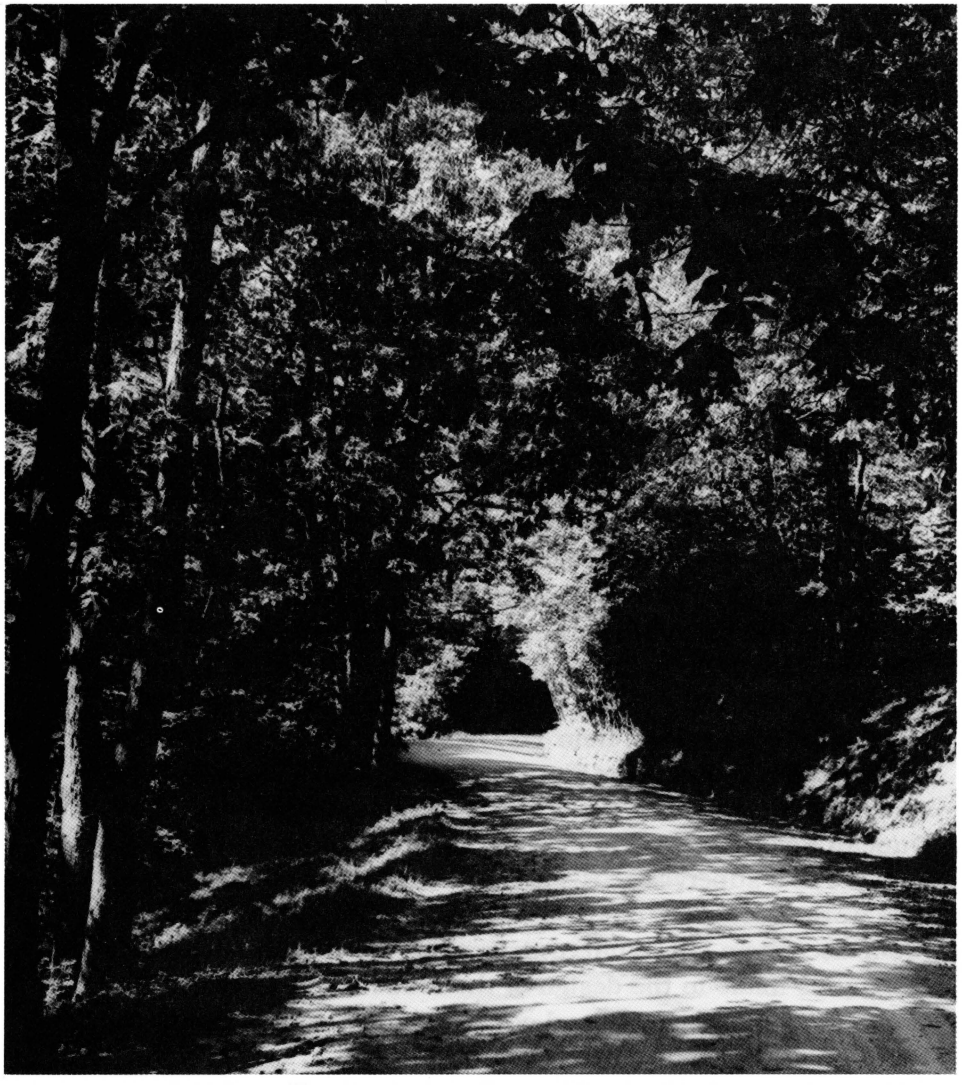
CARRIAGE ROADS

The Road System--The map of the estate drawn by W.G. Potter in 1909 (map 5) shows two types of roads--public roads and "Cone roads." The public roads include: the Yonahlossee Turnpike, the predecessor of U.S. 221, Flannery Fork and Shulls Mill Roads. Each followed a slightly more winding alignment than its modern equivalent. On the eastern edge of the estate was the Old Boone Road which no longer exists, though the old road bed can still be found. The system of private roads shown on the 1909 map was very extensive--totalling over twenty-four miles. These private roads were designed as carriage roads, and their peculiar horizontal and vertical alignment set them apart from other rural roads. Each stretch of carriage road was given a name, most of which are shown on the 1909 map (also see map 6). The character of these roads in the 1930s and 1940s can be seen in photographs 10, 11, and 12.

There were other roads on the Cone estate which were not recorded on the 1909 survey. These were farm and orchard roads used in the daily operation of the estate; some are indicated in maps of the orchards in 1900, see appendix 1. These roads were not designed to the same standards as the carriage roads; they have steeper gradients and follow more direct routes. Two of the more important are shown in map 6.



Photograph 9
Cone Estate
Aerial Photograph - see map 6
Date October 21, 1940
Reference CSC 9B 72



Photograph 10
Carriage Road on the Cone Estate
Date December 10, 1934
BRP negative #10,215



Photograph 11
Carriage Road on the Cone Estate
Date 1940s, Photographer Rowe
BRP negative #8895 (931CI)



Photograph 12
Carriage Road on the Cone Estate
Date 1940s, Photographer Rowe
BRP negative #8891 (936DG)

The Designer--Moses Cone is reported to have designed the carriage road system himself. He would walk or drive in a buggy along the line of a proposed road followed by a crew of men who would drive stakes into the ground following his instructions (Crandell 1977, Downs 7/19/89). Cone retained a civil engineer for advice, probably W. G. Potter of Greensboro, North Carolina, who made the 1909 survey (Pease 8/5/80). However, there is no reason to doubt that Cone designed his own roads. The design of low speed carriage roads could be done in the field. It required a detailed knowledge of the site rather than elaborate calculations (Cron 1959, p. 82), and the engineering of roads was considered a suitable occupation for a gentleman. Thomas Jefferson surveyed and supervised the construction of the roads at Monticello a hundred years earlier (Nichols and Griswold 1978), and J. D. Rockefeller, Jr., was to take up the same hobby on the family estates at Pocantico Hills, New York, and at Mount Desert Island, Maine, in the early decades of the twentieth century (Rieley and Browse 1989).

Moses Cone hired a number of different contractors to build the roads. In 1899 a Mr. Wolfe was constructing a road at Green Park (Cone docs. item 1:11/9/1899), and a year later a Mr. Trent was building the Flat Top Road (ibid:8/11/1900). But some of the work was done by Cone's own employees. The Duncan Road is named after G. H. Duncan who was employed by Cone as a supervisor. His accounts indicate that his crew of men worked primarily on the construction and planting of roads (Cone docs. item 10). What contributions these contractors and employees made to the design of the roads is not known. The consistency of the design and construction suggests, however, that Cone closely supervised the work.

No roads were built after Moses Cone's death. There has been speculation that he would have expanded the system had he lived longer. In particular the two mountain roads might have been continued to the north (Downs 7/19/89). The Deer Park Road on Rich Mountain appears to be incomplete (compare

maps 5 and 6). Under Bertha Cone's management, while no roads were added, a considerable amount of additional planting was carried out alongside the roads. The estate employees believed that she was implementing his ideas (Downs 7/19/89), but it is impossible to say how much was done on her own initiative.

Dates of Construction--Two of the roads were named after previous owners of tracts of land purchased by Moses Cone, viz: Wadkins and Stringfellow. This might indicate that sections of these roads existed before the land was acquired by Cone. The area had been settled for many years, so there must have been a network of local roads, but no early map of the area showing this has been found. It is clear, however, that most of the Cone roads did not follow preexisting routes.

The exact sequence in which the roads were built is not known. In Mulford's diary, there are references to the construction of the Esplanade in front of the partially completed Manor House (Cone docs. item 1:1/10/1900) and to the building of Flat Top Road (ibid:8/11/1900). Also there are mentions of planting trees and fencing the road near the Bass Lake dam (ibid: 4/3/1900 and 5/31/1900). Other references to roads are not specific so we cannot identify them. On Mulford's map of Flat Top Orchard (see appendix 1), the Orchard Road does not exist, so it was built after 1900. There is no mention of G.H. Duncan in Mulford's diary, so work on the Duncan Road also began after 1900. Duncan's accounts stop in 1905. This was the year that Moses and Bertha Cone went on a world tour, and he returned in poor health. It is likely, therefore, that all of the roads were completed by 1905.

Intended Use--The estate roads shown on the 1909 map were designed as carriage roads. Two surreys owned by Bertha Cone remain in the Carriage House today. Although the Cones kept "fast trotting" horses to pull the surreys (Hollers 10/2/75), the roads with their many hairpin bends were not suitable for the sport of coach driving. They were intended rather to be driven along at a leisurely pace so that passengers could enjoy the scenery.

The carriage roads also were used when riding horses and walking by the Cones, their guests, and the general public, see photograph 13. The estate was open to the public, but visitors were required to keep to the carriage roads (Downs 11/21/75, Walters 6/5/75). The roads were not designed for use by automobiles. Bertha Cone kept an automobile, but when her chauffeur drove her to Blowing Rock, they went via the public roads (Downs 7/19/89). The public was forbidden to drive automobiles on the carriage roads, but this rule must have been modified in later years when apples were shipped by truck from the apple barn on Stringfellow Road.



Photograph 13
Horseback Riders at Bass Lake
Date unkown, Photographer Rowe
BRP negative #439

Construction--

Vertical and Horizontal Alignment

The gradient on the carriage roads seldom exceeds 5 percent (short sections on the Entrance Road near Bass Lake and on Flat Top Road near the summit exceed this figure). While this gradient was considered to be the maximum desirable for carriage roads (Frost 1910, p. 47), it is very low in comparison to the steepness of the mountain slopes. The low gradients were maintained by traversing the slopes via a series of switchbacks. On the upper section of Flat Top Mountain Road, there are fifteen switchbacks. On Rich Mountain Road the final section spirals three times around the summit. The curves on the road are very tight. The outside radius is often only twenty feet. These curves would require horses pulling a surrey to walk slowly around each bend.

Type of Construction

All the carriage roads were earth roads (Downs 7/19/89), except for the Entrance Road from Sandy Flat, which was a macadam road (Potter 1909 map). Some of the earth used in the construction of the roads was obtained from a pit beside Black Bottom Road in the Saw Mill Place Orchard (Redmon 8/9/89). The source of the stone used in the macadam road is not known, but it was probably obtained on site.

Cross Section

The carriage roads varied in width between twelve and fifteen feet, measured between the center lines of the side gutters. The entrance roads were the widest roads. The narrowest roads were still wide enough to allow two carriages to pass each other safely.

The roads were cambered to ensure surfaces would drain to the side gutters. The remains of a camber can still be seen on those sections of road which have not been disturbed much since the historic period (e.g. the upper sections of Rich Mountain Road which have a cover of grass). However, it is not possible to measure the original height of the crown because of erosion. It was a recommended practice to create a slope of between a 1/2 and 1 inch per foot between the center and the side (Baker 1918, p. 82).

On some stretches of the mountain roads, there is no sign of a gutter on the outside of the road. This may be the result of extensive erosion since the historic period, or it may indicate that in places a simple cross fall to the inside of the road was constructed. This was the recommended practice on steep curves, but authorities differed as to its wisdom elsewhere (Frost 1910, p. 195; Baker 1918, p. 84).

Drainage

There is no evidence of an underdrainage system, which was probably considered unnecessary on the steep slopes. Surface water was collected in gutters on the sides of roads from which it was removed before each bend. The channels which diverted water from outside gutters were simple cuts in the outer embankments and do not appear to have been lined in any way.

Culverts transferred water from inside gutters to outer slopes. These were originally built of wood (Cone docs. item 1:6/1/1900) or stone (Downs 7/19/89), but none of these original culverts have been found in the course of this project. They have been replaced with earthenware pipes--usually 12 inches in diameter--with a stone capping and stone headwalls. Some corrugated steel pipe was also used in the historic period, as this can be found in stretches of road abandoned when the NPS acquired the estate.

Construction Methods

The documentary records give little information on the methods of construction, the equipment used, or the size of the construction crews. In Mulford's diary there are references to

blasting (Cone docs. item 1:7/6/1900), to hauling stone (ibid:1/10/1900), and to the purchase of a road scraper (ibid:11/9/1899). Estate inventories include a "road machine" and two types of road scraper (Cone docs. item 3:12/6/1899 and 9/15/1900). An invoice book contains a bill for parts for a road roller (Cone docs. item 7:1900).

We do not know how many men the various contractors employed, but G. H. Duncan had a crew of twenty to forty men working with three to eight teams of horses or mules during the spring of 1904 (Cone docs. item 10:3/15/1904 to 6/15/1904).

Maintenance--The earth roads received continuous maintenance during the historic period. Bertha Cone is reputed to have noted any ruts or bumps in the roads during her carriage drives and to have required immediate repairs (Crandell 1977). Estate workers would scrape and rake the roads and clear the drainage channels at least four times a year (Downs 11/21/75 and 7/19/89, Hollers 10/2/75, Isenhour 5/20/75).

Crushed stone was added to the roads leading to the Saw Mill Place apple barn during the historic period to reduce damage caused by trucks shipping apples from there each fall (Downs 7/19/89). The stone was added as a surface dressing. The effectiveness and frequency of this treatment is not known.

Retaining Walls--Retaining walls were rebuilt to support the road and the banks above them. Breast walls above the roads are handsome features on the approaches to the Manor House and between Bass Lake and the Entrance Gate. Retaining walls below the road can be found at many of the hairpin bends, at stream crossings, and on the final stretches of the Rich Mountain and May View Roads, see photograph 14.

All the walls are of drystone construction, made of the local grey schist. The rubble stones have been roughly trimmed on the outside face. In some places the walls are interrupted by large boulders, which remain in situ beside the roads. There is no coping to the walls, and those below the roads are scarcely visible from above. On Rich Mountain and at May View the walls reach considerable heights, exceeding ten feet in places. The Daybook for 1904 records payments made by G.H. Duncan to workers for building walls. John Hodges was paid at the rate of forty cents per yard of wall (Cone docs. item 10:2/29/1904).



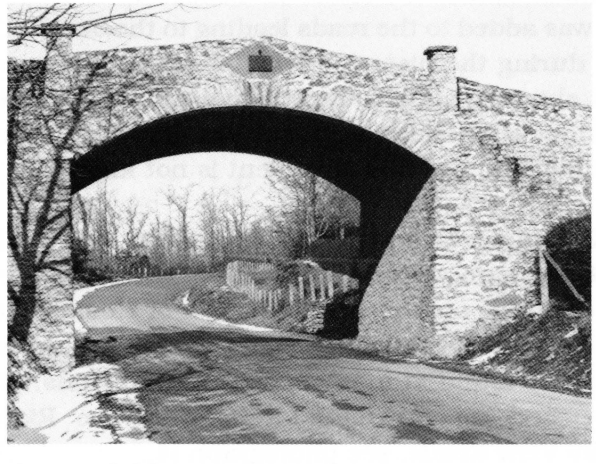
Photograph 14
Retaining wall below Rich Mountain Road
Date July 1989, Photographer Ian Firth

Other Structures--The bridges and gates on the estate were modest in scale and unpretentious in design. At Bass Lake and Trout Lake the bridges originally had wooden decks between stone walls (Downs 7/19/89 and Cone docs. item 132:1911). These walls and the abutments were of the same local stone as the retaining walls, but roughly squared and laid with mortared joints, see photograph 15. There was a stone bridge carrying May View Road over the Turnpike Road, but the details of its original construction are not known, see photograph 16. The gates at the principal entrances to the estate--at Bass Lake and Sandy Flat--are of wrought iron, see photograph 17. The Bass Lake gates are hung between massive stone piers. There were no gates at the other points of entry to the estate--on Trout Lake, May View and Wadkins Roads (Pease 8/5/80), but there are still two large tree trunks standing like gateposts at the junction of Wadkins Road and the Old Boone Road.

At the summit of Flat Top Mountain a tower was constructed to allow visitors to see out over the trees, see photograph 18. The tower was made of chestnut wood (Pease 8/5/80). It was constructed as soon as the Flat Top Road was completed in 1900 at a cost of $53.75 for labor and $64.88 for materials (Cone Docs. item 7). There was another so called "observatory" (Daniels 1930 in Buxton 1987, p. 17) at the summit of Rich Mountain. This was a grassy platform surrounded by a low retaining wall and centered on what may have been an old red maple (Acer rubrum), judging from the dead tree trunk which remains.



Photograph 15
Bridge over overspill channel at Bass Lake
Date December 20, 1934
BRP Negative #10,214



Photograph 16
Bridge carrying May View Road over the Turnpike
Date December 20, 1934
BRP negative #10,213

Roadside Planting--

Sources of plants and professional advice

The planting of trees, shrubs, and vines was an integral part of the road design. Again it seems likely that Moses Cone was responsible for the design. No record has been found to indicate that he sought professional advice. However it is possible that he consulted the nurserymen who supplied the plants. One of his main sources of supply was Harlan P. Kelsey's nursery at Linville, North Carolina (Cone docs. item 1:1/16/1900). One of Kelsey's bills describes him as a "Landscape Architect of Boston, Mass., and proprietary of Highlands Nursery in the Carolina Mountains" (Cone docs. item 12:1899-1904). The firm of Kelsey and Guild prepared a report in 1907 on *Beautifying and Improving Greenville, South Carolina.* Later Kelsey was to represent the American Association of Nurserymen on the American Joint Committee on Horticultural Nomenclature in 1915. Frederick Law Olmsted, Jr., represented the American Society of Landscape Architects on the same committee (Olmsted, Colville and Kelsey 1923).



Photograph 17
Entrance gates near Bass Lake
Date 1953, Photographer Weems
BRP negative #224

Cone hired, as superintendents, men with a strong horticultural background, and their practical knowledge must have been invaluable. F. L. Mulford's diary suggests a wide knowledge of horticulture, and seventeen years later he was cited by Olmsted, Colville, and Kelsey as an authority within the U.S. Department of Agriculture on the nomenclature of annual plants. E. G. Underdown, who succeeded Mulford as superintendent, may have been associated with J. H. Underdown and Son, Caldwell Nurseries in Lenoir, North Carolina, before he was hired by Cone. This nursery supplied many of the apple trees which Cone planted, and there is a reference in Mulford's diary to Underdown obtaining cuttings from apple trees for his father (Cone docs. item 1:2/14/1900).

Dates of planting

Planting was underway in 1900. Mulford's diary refers to planting trees and shrubs obtained from Kelsey in an estate nursery (ibid 1/25/1900). This was located north of Bass Lake in the area now occupied by white pines which was at that time a meadow (Downs 7/19/89). In the spring of 1900, Mulford was planting maples near the Bass Lake entrance. He refers to scarlet maples, but these were probably sugar maples (*Acer saccharum*), Virginia creeper (*Parthenocissus quinquefolia*), and honeysuckle (*Lonicera sempervirens*) along the Entrance Road probably near Sandy Flat (Cone docs. item 1:4/3/1900 and 4/28/1900).

Planting was carried out on a large scale over the next seven years. For example, in a 1904 Daybook, G. H. Duncan records payments made for planting 2818 "balsams" (*Abies fraseri*) and maples during two weeks in May. At the same time he took delivery of 11,896 rhododendrons (Cone docs. item 10:5/15/1904). After Moses Cone's death the work continued, but on a smaller scale. For example, in 1915 payment was made for 125 Fraser fir and 25 ash (Cone docs. item 128).



Photograph 18
Observation Tower on Flat Top Mountain
Date Unknown
BRP negative #5183 (894D)

Planting design

Nearly all the roadside planting used native species. The contents of the estate nursery in 1900 gives an indication of the types of trees, shrubs, and vines used, see table 1. All the named species can be considered native to the mountains of western North Carolina with the exception of black spruce (*Picea mariana*, listed as *Picea nigra*) (Radford 1958) and the apple trees which were destined for the orchards rather than the roadsides. This concentration on native species weakened in later years. Some of the invoices from plant nurseries in the years 1913-1917, for example, include exotics and hybrids (Cone docs. item 128). But it was only around Bass Lake that introduced species came to play a significant role in the design.

A large part of the planting program was designed to enrich the composition of the forests beside the roads. By their nature, these plantings of native species in informal groups are difficult to identify today, but where a group of trees or shrubs with ornamental attributes are strategically placed by a curve in a road, there is a strong possibility that they were planted.

Some of the planting had a more formal character. Trees were planted to form avenues across open fields near Bass Lake along the Entrance, Stringfellow, Duncan, and Bass Lake roads. The avenues were planted before the fields were converted to white pine plantations (Downs 7/19/89). Three species were used: sugar maple, tulip poplar, and Fraser fir. The sugar maples were planted in a double row around Bass Lake and on short stretches on the Entrance Road, see figure 8. Elsewhere a row of sugar maples or tulip poplars was planted on the downhill side of a road with a line of Fraser firs on the uphill side. Single lines of trees were planted on other stretches of roads in open areas. A line of white ash trees was planted opposite the Carriage House and on May View Road, and white ashes and sugar maples were interplanted where the Rich Mountain Road left the forest near the summit of the mountain.

Within the forests lines of rhododendrons and mountain laurels were planted alongside the roads. In some places they form avenues, in other places they are confined to the uphill sides of the roads and seem to accentuate the steepness of the slopes. While rhododendrons and mountain laurels occur naturally near the streams on the mountain slopes, the majority of the lines were obviously planted. *Rhododendron maximum* was the most widely planted species. On the roads near the Manor House, *Rhododendron catawbiense* was mainly used at corners, most noticeably in the center of hairpin bends, where its purple blossoms still create striking effects each June. On the two mountain roads the rhododendrons are distributed in clumps between rock outcrops rather than lines, and while some of these may be naturally occurring stands, others were probably planted. On Flat Top one finds only *R. maximum*, while on Rich Mountain there is a high proportion of *R. catawbiense*. Rhododendron and mountain laurel were originally absent from the open fields where the avenue trees were planted, but they were introduced after the white pines were established (McAngus 8/22/89).

The planting beside the road around Bass lake was quite different in character from the rest of the roadside planting. On the north side, banks of rhododendron were planted, but these included some hybrid varieties (field observations). Beyond the rhododendrons are a double line of hemlocks planted around 1916 (dated with an increment borer 8/22/89) and a line of tulip poplars whose age has not been determined but which may have been left from the estate nursery, which was located in that area. On the southwest side of the lake were large beds of hydrangeas. These were Pee Gee hydrangeas (*Hydrangea paniculata var. Grandiflora*) introduced from Japan and a nineteenth century favorite for ornamental shrubberies. Beyond the hydrangeas, blocks of Norway spruces, hemlocks, Fraser firs, and white pines provided an evergreen backdrop. Most or all of this planting was done after Moses Cone's death, and it may reflect Bertha Cone's tastes. It has a more ornamental and less natural character than the planting on the rest of the estate. Employees remember that the area was always meticulously maintained and had a manicured appearance (Walters 6/5/75 and Downs 7/19/89). The southwest side of Bass Lake was visible from the Manor House, and the large blocks of planting may have been designed to be seen from the house.

Although the public roads were not part of the carriage road system, some ornamental planting was done beside them as well. Rhododendrons and mountain laurels were planted along Flannery Fork Road, and hedges of hemlock were planted wherever the Yonahlossee Turnpike ran beside open fields, see photograph 19.



Photograph 19
Hemlock hedge beside Turnpike Road
Date 1940s, Photographer Rowe
BRP negative #8894 (931CH)

Views--For more than forty summers Bertha Cone would take a daily carriage ride to enjoy the scenery and to keep an eye on the estate (Downs in *Smith*, no date). The property offered an extraordinary variety of scenery. Changes in elevation, climate, and vegetation had produced a natural variety, from the moist coves with their tall hemlocks to the exposed ridges with their oak and hickory forests. To this variety was added the diverse activities of the orchard and stock farm which must have provided pleasing scenes of rural industry. These landscapes were embellished by the extensive ornamental plantings, the lakes and ponds, the deer parks, and last but not least, the Manor House at the center of the estate, see photographs 20 and 21.

Each road linked a series of viewpoints. The steep slopes provided natural vantage points, improved in places by retaining walls. As a road wound back and forth, new views would open up. Some of the hairpin bends were located to provide spectacular views, which could be enjoyed as the horses slowed to negotiate the turns. At the point where a road left the forest, the view was framed by trees and rhododendrons, and where a road ran beside an orchard or pasture, the view was filtered by a foreground of trees. In a few places trees were cleared to provide a vista. This must have been done at May View for example, but the finest views were obtained from the summits of the mountains, see photograph 22. At Flat Top the tower provided a 360 degree view, while at Rich Mountain some foreground trees divided the panorama into a series of vistas.

As each road passed through forested and open stretches, a sequence of contrasting views would be obtained. In the forests the views were often restricted by the trees and lines of rhododendrons and mountain laurels, so foreground details--a boulder or flowering shrubs--might catch the eye. In the open spaces more distant views could be enjoyed. The sequence of views appears to have been carefully planned to avoid repetition and create picturesque effects. For example on the Entrance Road after leaving Bass Lake, one sees the Manor House only once from a vantage point at the east end of Flat Top Orchard, until one rounds the last bend and approaches the Esplanade. It was the succession of views which gave each road its distinctive character. While construction details and planting patterns were repeated from road to road, the views made each road unique, see maps 9 to 13.



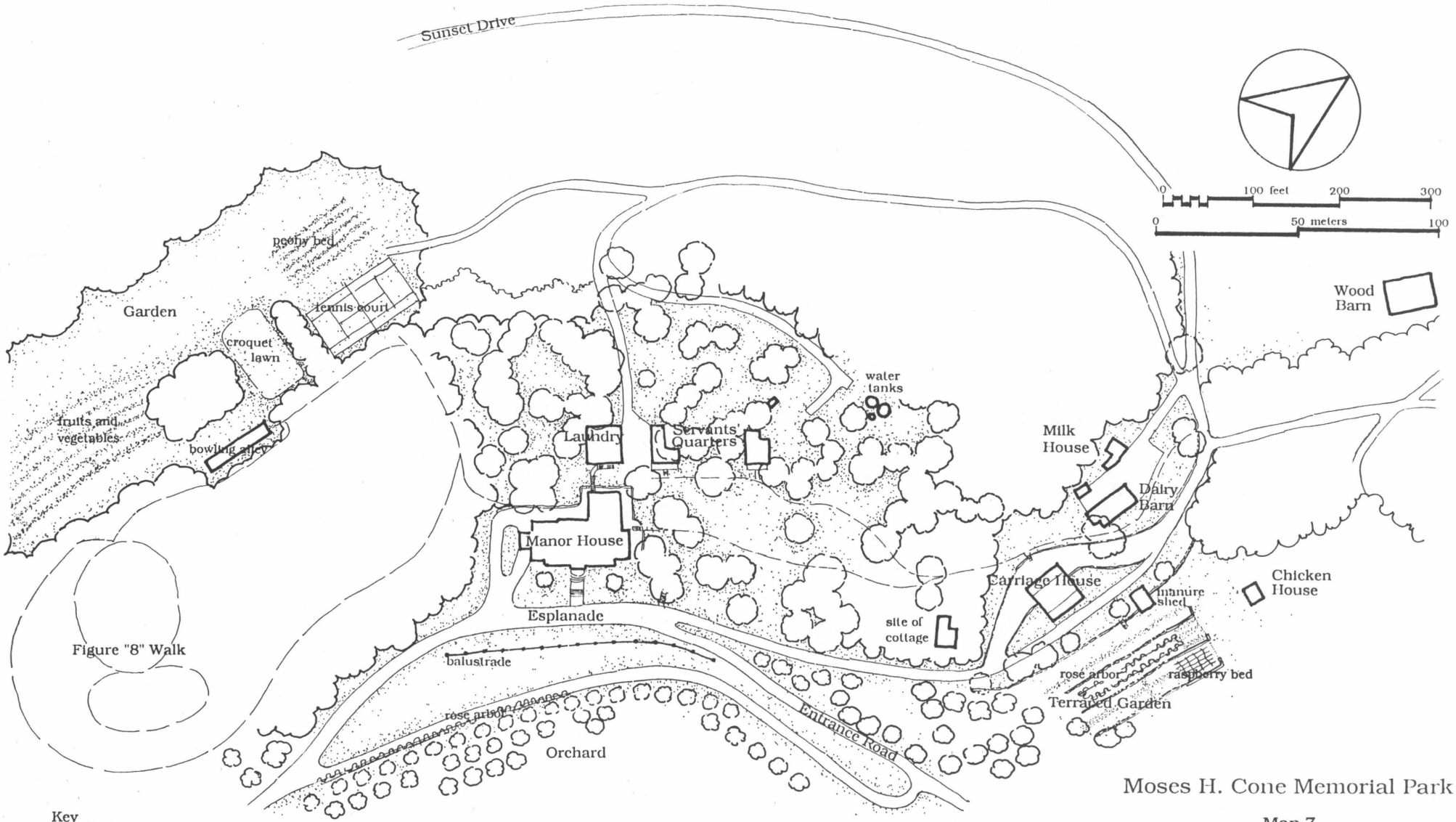
Photograph 20
View from the Esplanade towards Bass Lake
Date July 13, 1947, Photographer Weems
BRP negative #7571 (894H)



Photograph 21
View across Bass Lake towards the Manor House
Date unknown, Photographer Rowe
BRP negative #9533 (932CM)



Photograph 22
View from Flat Top Mountain Towards Grandfather Mountain
Date 1940s, Photographer Rowe
BRP negative #8892 (936DR)



Key

Footpath
Tree Canopy
Retaining Wall
Garden

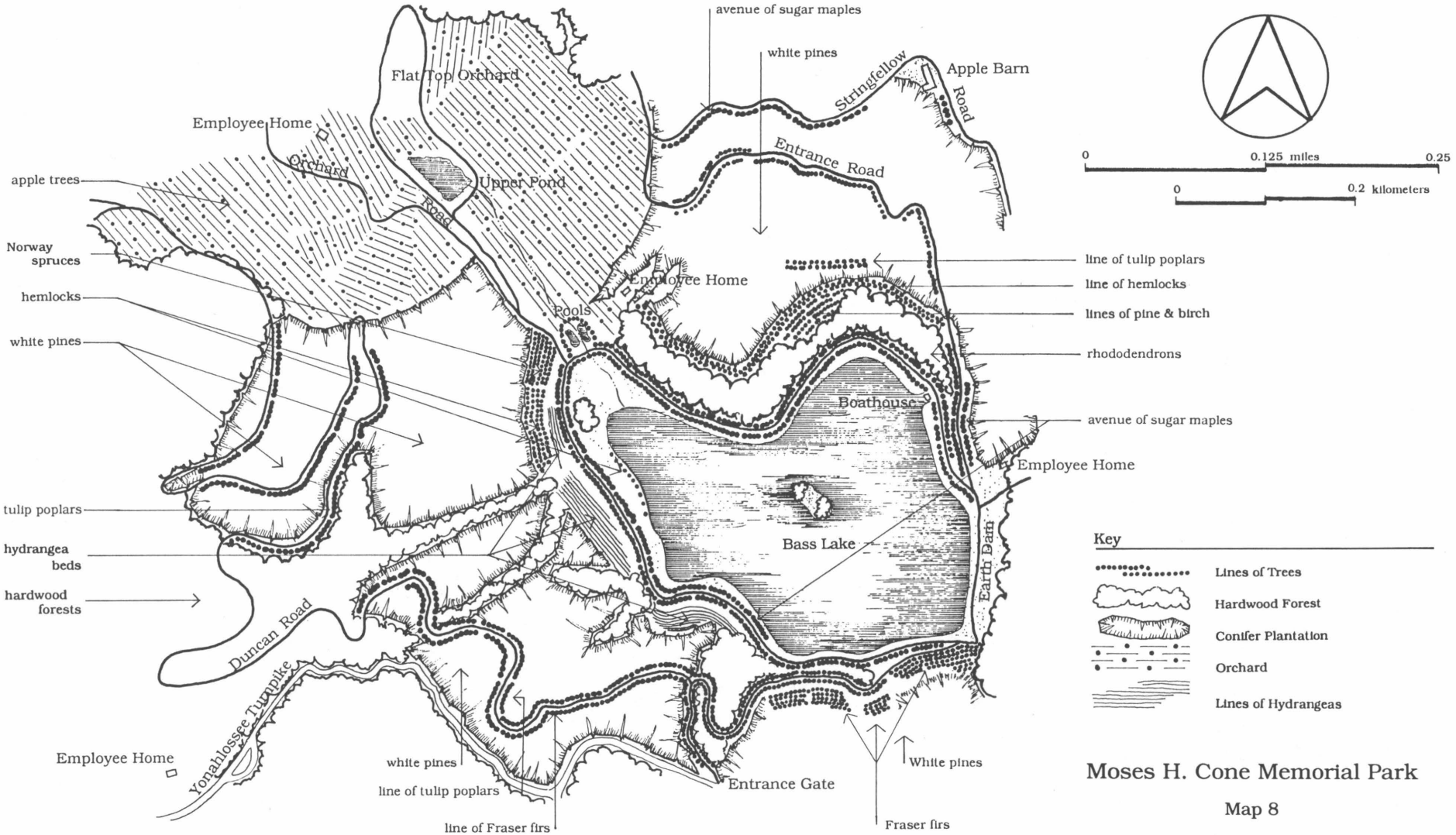
Sources: black & white aerial photographs dated 10/21/40; drawings in the Blue Ridge Parkway collection & field investigations.

Moses H. Cone Memorial Park

Map 7

The Manor House Area 1940

drawn by: LL checked by: IJWF
date: 9/30/89



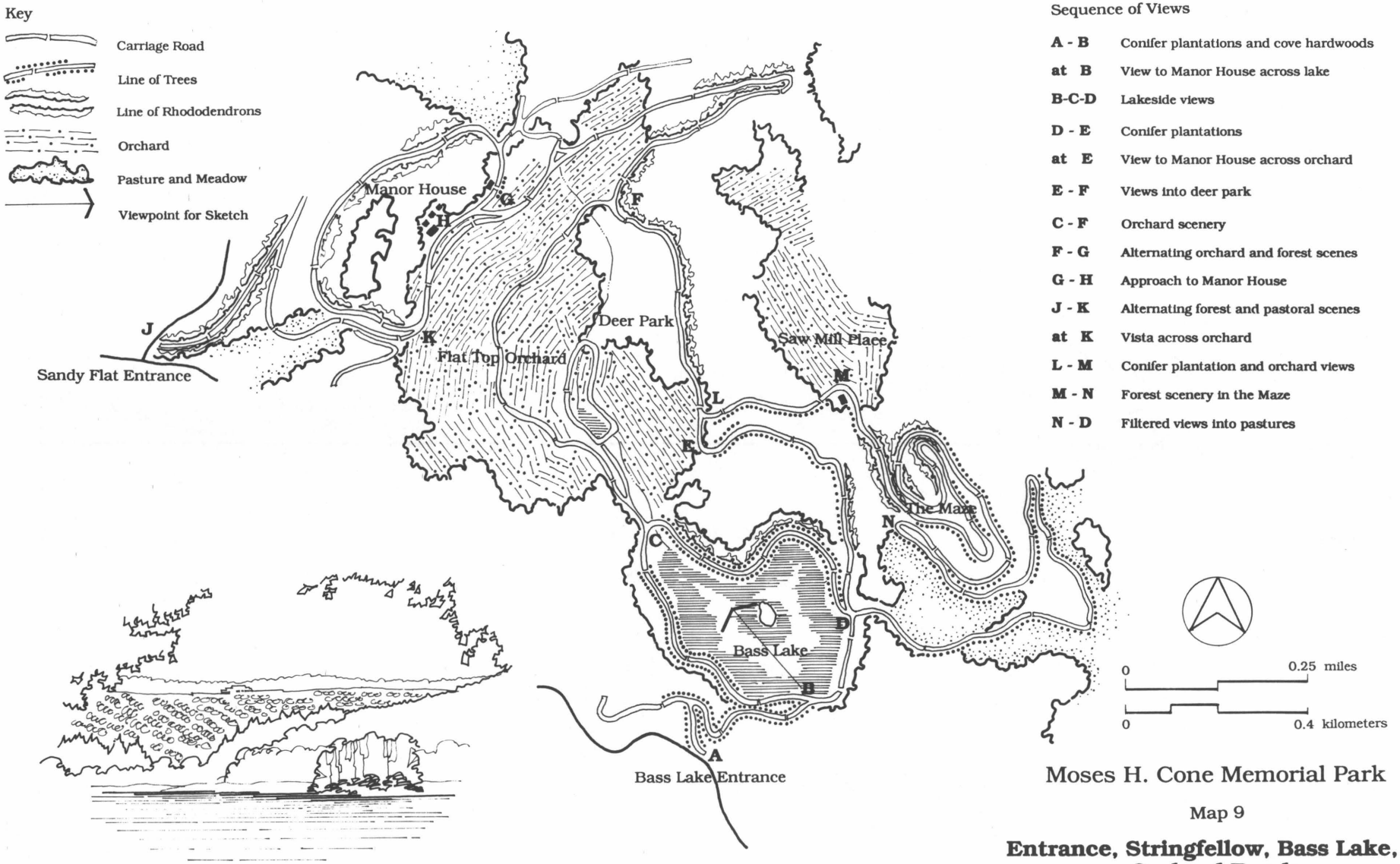
Sources: black & white photographs dated 10/21/40; B.R.P. surveys & drawings; interviews & field investigations.

Moses H. Cone Memorial Park

Map 8

Bass Lake Area 1940

drawn by: JM && LL checked by: IJWF
date: 9/30/89



View across Bass Lake to Manor House

Moses H. Cone Memorial Park

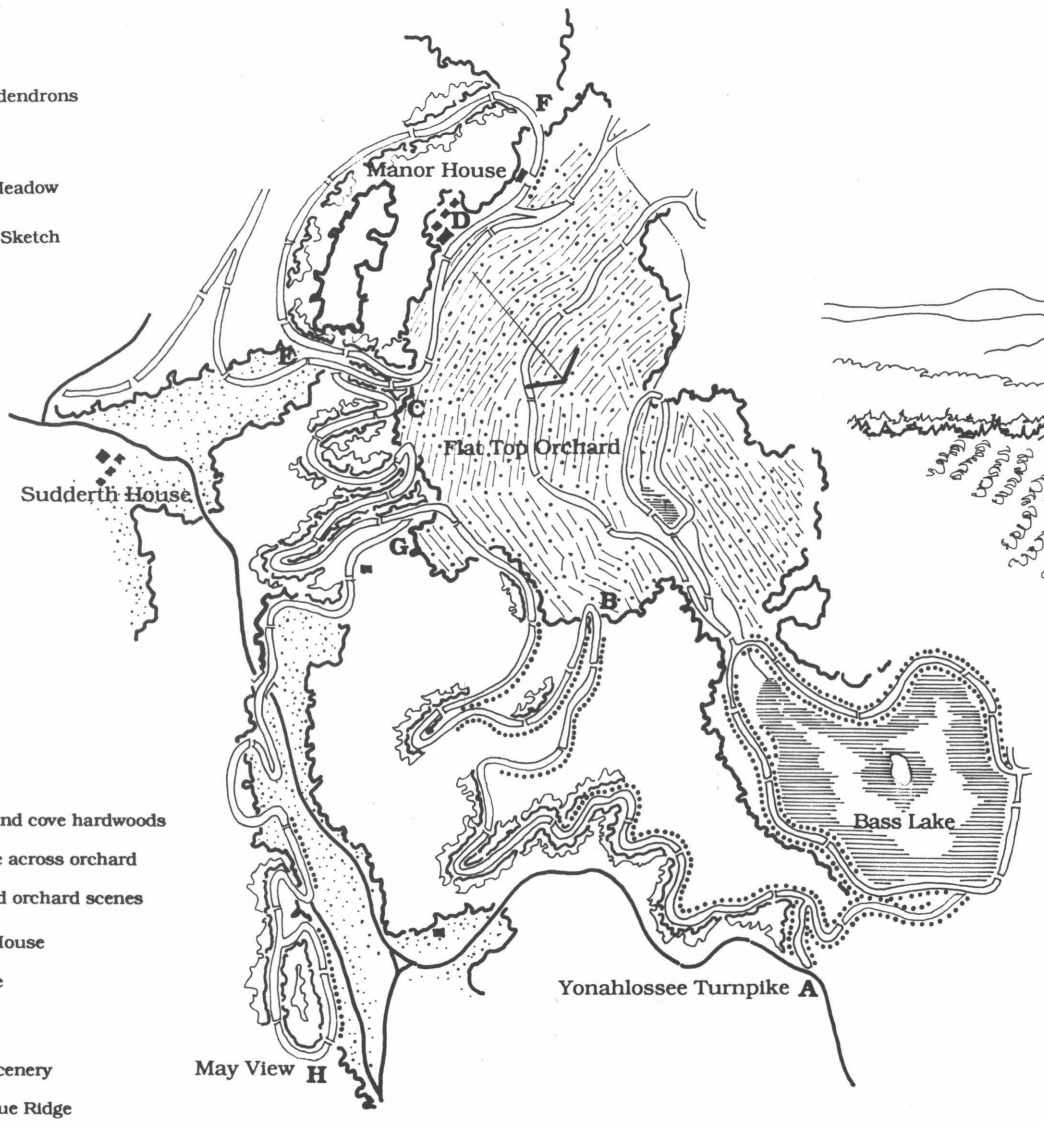
Map 9

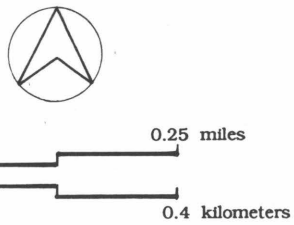
Entrance, Stringfellow, Bass Lake, & Orchard Roads

drawn by: IJWF
date: 3/30/90

Key

- Carriage Road
- Line of Trees
- Line of Rhododendrons
- Orchard
- Pasture and Meadow
- Viewpoint for Sketch







View from Esplanade to Bass Lake

Sequence of Views

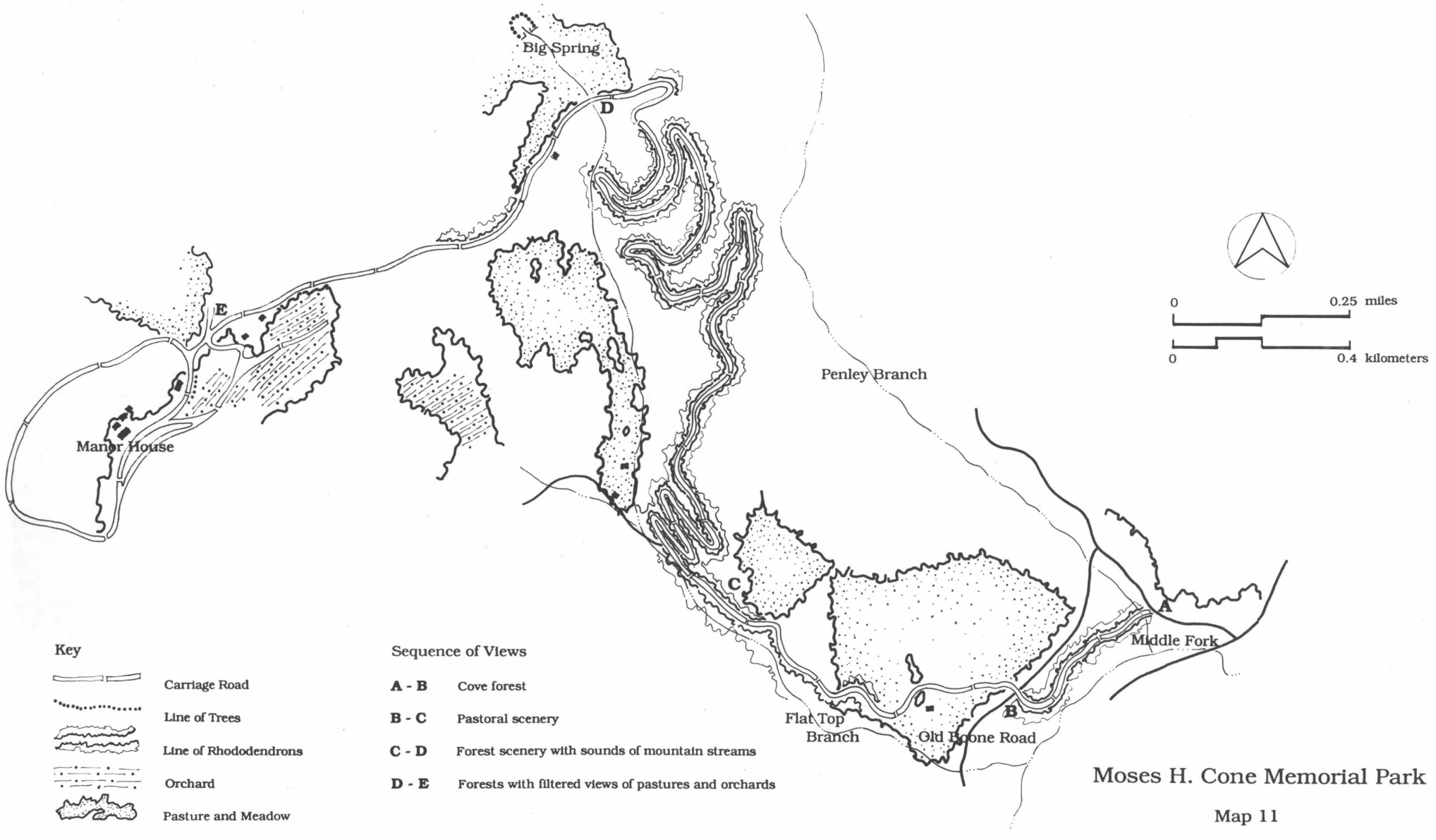
A - B	Conifer plantations and cove hardwoods
at B	View to Manor House across orchard
B - C	Alternating forest and orchard scenes
C - D	Approach to Manor House
at D	Vista from Esplanade
E - F	Forest scenery
G - H	Pastoral and forest scenery
at H	Vista from edge of Blue Ridge

Moses H. Cone Memorial Park

Map 10

Duncan & May View Roads

drawn by: IJWF
date: 3/30/90



Moses H. Cone Memorial Park

Map 11

Wadkins Road

drawn by: IJWF
date: 3/30/90

ORCHARDS

Location--There were four main apple orchards on the estate in 1900. Flat Top Orchard occupied eighty-two acres on the slopes of the valley below the Manor House, see photograph 23. China Orchard was on the scarp face of the Blue Ridge below Sandy Flat. The name is said to have referred to its inaccessibility (Pease 6/5/80). China was about the same size (eighty-one acres) as Flat Top, but this included patches of woodland within the orchard. Saw Mill Place lay to the east of Flat Top Orchard, to which it was linked by Stringfellow Road. It was less than a third of the size of the others, comprising of only twenty-five acres. The fourth orchard was located beside the Green Park Hotel, 2.5 miles from Flat Top Manor. The Green Park tract was seventy-two acres in extent (Indenture 5/30/1911), but only a small portion of it was given over to the orchard. It was not included in the 1911 indenture and does not form part of the Moses H. Cone Memorial Park. All of these orchards were inventoried and mapped by F. L. Mulford in 1900, see appendix 1.

In addition to these orchards there were fruit trees planted around the employees' homes. Some of these trees are visible on the 1940 aerial photographs, and others have been found during field investigations. The largest of these small orchards was close to the Sudderth farmhouse below Sandy Flat. Mulford also refers to a chestnut orchard beside Flat Top Meadow (Cone docs. item 1:5/9/1900), but its exact location is unknown.

Dates of Establishment--The four main orchards were planted in the fall of 1899 and the spring of 1900. Invoices record the purchase of nearly three thousand apple trees in 1899 (Cone docs.item 130), and Mulford's diary is filled with references to planting in progress (Cone docs. item 1). However, the new orchards incorporated some older trees. Mulford was unable to identify some of these existing trees in his maps of China Orchard and Green Park. It may also be significant that Moses Cone's annotations in the *Rural New Yorker* of 1899 indicate an interest in restoring vigor to old orchard trees (Cone docs. item 33).



Photograph 23
Flat Top Orchard
Date Unknown, Photographer Rowe
BRP negative #8909 (933CR)

Site Characteristics--In 1896 the State Board of Agriculture published the following assessment of the fruit growing potential of the mountains of western North Carolina:

> The region is the home of the apple, and is destined to become the greatest apple growing region in America when its capabilities in this respect are fully known to fruit growers. Though the apple thrives here under the most negligent treatment and produces unfailing crops, there have been few attempts to grow the fruit in a systematic manner, and the ignorance among the growers as to the proper manner of culling, packing and shipping has caused the fruit of the mountain country to have a reputation that it does not deserve.
>
> All that is needed here is a population of fruit growers who understand the culture and handling of winter apples. Apples of the northern varieties grown in Watauga county, are hardly recognizable because of their greater size and beauty. With good railroad connections southward (the natural market for the fruit of this section) the growing of apples cannot fail to be profitable. And when is added to this the general fertility of the soil, the pure cold water, fine grasses for dairy purposes, and the superb mountain scenery with the phenomenally light snow fall, we have a region that combines all the advantages of the North in its bracing climate, with the added advantages of a short winter, abounding sunshine and little snow. It is a paradise for the stock raiser, the dairy-man and the fruit grower. It must not be assumed that the apple is the only fruit that will thrive in these valleys and elevated plateaus. In some parts of the mountain region the peach grows to great perfection, while in some parts it is not as successful as further east. But cherries, plums, quinces and pears are perfectly at home, and the grape reaches a high degree of excellence, and wine of the finest kind is being made.
>
> (N.C. State Board of Agriculture, 1896)

The Cone estate enjoyed a climate suitable for growing apples, particularly on the lower south-facing slopes with their good air drainage. Flat Top, China, and Saw Mill Place Orchards were located in the three valleys on the estate below 4000 feet with a southerly orientation. The main problem, which the State Board of Agriculture omitted to mention, was the steepness of the slopes in these mountains. In Flat Top Orchard many slopes exceed 30 percent. China Orchard occupies even steeper ground. There is a fall from top to bottom of 800 feet, and nearly everywhere slopes exceed 30 percent; in places they approach 100 percent. Saw Mill Place has gentler slopes, but even here about one third of the site has slopes over 30 percent. As a result soils are generally shallow and stony. According to the Soil Survey of Watauga County, the only good soil in any of the orchards is on the western side of Flat Top, where the Duncan Road runs through the orchard (Soil Conservation Service 1944). In November 1899, Mulford assessed the potential of Saw Mill Place as follows:

> Looked over Saw Mill Place as to desirability for apples, Jonathan, York, Imperial and Northern Spy. The land may be a little thin, the subsoil though of yellow clay is not very tough. The land has a colder exposure than some others but is not too much so for these varieties I believe.
>
> (Cone docs. item 1, November 1, 1899)

Steep slopes made many orchard management operations difficult and required a considerable investment in the construction of orchard roads. In Flat Top and Saw Mill Place, new roads were constructed following the contours as far as

possible. In China Orchard it was decided to add cable tramways about 1910 (Beeler et al 1980). There were two lines, the longer of which ran for 1700 feet. Carts ran on steel rails laid on a framework of locust and chestnut. Sections of track were removable where they bridged orchard roads. The carts were 12 x 4 feet in size and could carry eight to ten crates, each of which was filled with three bushels of apples. The carts were pulled by cable to the engine house above the orchard (Beeler, et al, 1980 and Hollers 10/2/75).

Composition--The orchards were devoted to growing apples primarily, but Mulford's inventory also included pears, peaches, plums, cherries, nectarines, chestnuts, and hickories, see table 2 and appendix 1. Flat Top and China Orchard each had over 12,300 apple trees in 1900; Saw Mill Place had 3,782 and Green Park about 620.

Mulford listed seventy-five types of apples, but of these the first sixteen cultivars occupied most of the area. The remainder were grown in small sections of Flat Top and China Orchards described as family orchards. The first sixteen cultivars may therefore be regarded as the commercial varieties and the remaining fifty-nine cultivars as apples grown for the Cones' own use. The sixteen commercial varieties were divided into "permanents" and "fillers," see table 2. Filler trees were planted between the permanent trees for production in the early years of the orchard's development and were to be removed as the permanent trees grew. The characteristics of the apples are summarized in table 3.

Many of the apple trees came from commercial nurseries in North Carolina. These nurseries had been established in the so-called thermal belt of piedmont North Carolina (NC State Board of Agric. 1923, p. 39). In 1899 Moses Cone bought 2553 trees of eight different varieties of apple from J. H. Underdown and Son of Lenoir and over 1100 apple trees from J. Van Lindley of Pomona, North Carolina (Cone docs. items 3 and 130). The estate's own plant nursery above Bass Lake was used for storing purchased trees and grafting scions of selected cultivars onto seedling rootstocks. Some scion material was obtained from the older apple trees growing in the orchard and some from trees on farms around Blowing Rock (Cone docs. item 1:2/14/1900).

The other fruits were grown in the family orchards and at Green Park. Mulford listed thirty-three peach cultivars in his inventory. Cold temperatures in the spring were a threat to the peach crop, and Mulford refers to filling "peach protectors" with snow to protect buds (Cone docs. item 1: 2/16/1900 and 3/17/1900). Among the other fruit trees, Mulford listed twenty types of pear, ten plum cultivars, and nine cherries, see table 2. Some soft fruit was also grown in the orchard at Green Park, and grapes were planted there and in China Orchard. All of this fruit was intended primarily for the Cones' own use, but in later years the variety was much reduced. Clyde Downs only remembered apples, cherries, and grapes being grown in the family orchards in the 1920s (Downs 7/19/1989).

Organization--Mulford divided each orchard into sections as he mapped it, see maps 14 and 15 and appendix 1. Some of the boundaries of these subdivisions follow natural features, such as streams or ridges, and some indicate a change in the type of trees planted, but others appear arbitrary and perhaps reflect an interruption in the survey process. In his diary Mulford also referred to the sections of the orchard by the name of the cultivar(s) which constituted the permanent planting. This more meaningful division is mapped on maps 16 and 17. The distribution of cultivars in each orchard probably reflected an assessment of the site's potential in relation to the requirements and tolerances of each cultivar. Albemarle Pippins occupied the center of both Flat Top and China Orchards, while the margins were devoted to other cultivars. The Albemarle Pippins were interplanted mainly with Ben Davises and Magnum Bonums in Flat Top and Winesaps and Arkansas Mammoth Beauties in

China. The family orchards occupied the northeast corners of both orchards.

The trees were planted in straight lines approximately parallel to the contours, see maps 16 and 17. On some very steep slopes earth was retained around the trees by small dry stone walls, some of which can still be found in China Orchard today. But Mulford's maps show that there was very little allowance made for the very steep slopes and the rock outcrops. The permanent trees were planted about two rods (thirty-three feet) apart with filler trees between them. The rows of permanent trees had rows of filler trees between them, so that three filler trees were planted for each permanent tree, see appendix 1.

Management--Much of the ground in which the trees were planted had previously been pasture, but some areas had to be cleared of forest trees. There are several references in Mulford's diary to pulling stumps and burning them. The cleared ground was plowed before the apple trees were planted. Some of the planting was recorded as replanting, but there was no explanation as to why this was necessary. From November 1899 to April 1900, work gangs were busy transplanting trees. One typical diary entry reads:

> 9 Nov
> Clear and fine. Planted 250 trees. Red Limber Twig in Robbins clearing. Mostly permanent rows. Most fillers staked, and holes dug also some holes in the hollow.
> (Cone docs. item 1, September 11, 1989)

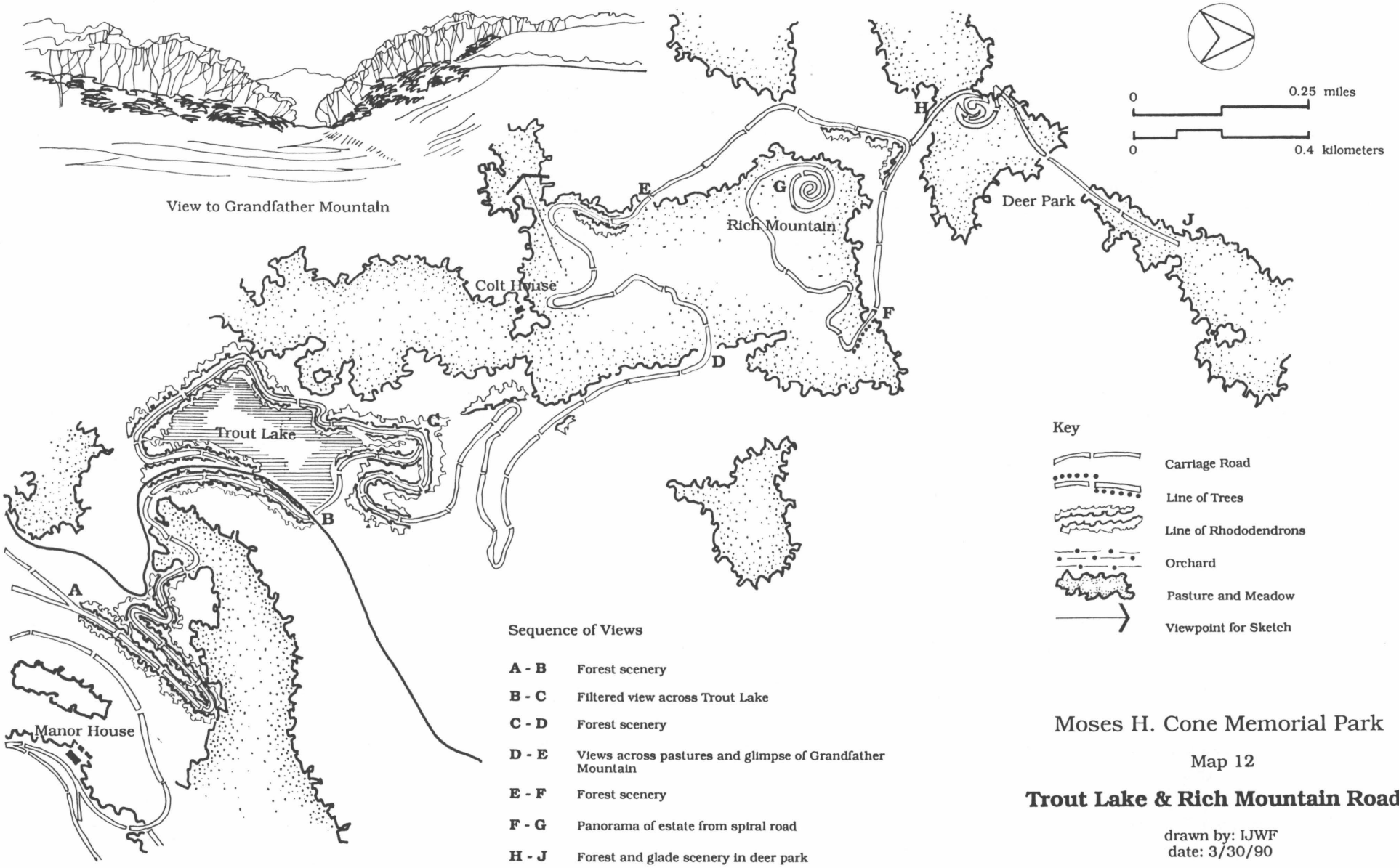
Grafting was a major operation in the spring of 1900 and for many years thereafter. On March 15, 1900, for example, Mulford recorded grafting one thousand York Imperial and seven hundred Jonathan. Grafting required some skill and was more highly paid than other jobs on the estate. In 1905 hourly hands were paid 10 cents per hour for grafting, while other tasks were paid at a standard rate of 6 1/2 cents per hour (Cone docs. item 10). Sometimes more than one type of cultivar was grafted onto the same tree. For example, on May 5 Mulford noted:

> Grafted trees at Blackburn house as follows
> South tree East limbs 2 stubs Albemarle Pippin
> South tree South limbs 2 stubs Spittzenberg
> South tree West limbs 2 stubs Jonathan
> South tree North limbs 2 stubs Ben Davis
> North tree Top limbs 2 stubs Baldwin
> (Cone docs. item 1:5/5/1900)

The object of this exercise was not explained.

All the trees in the orchards were trained as half standards with an open crown, see photographs 24 and 25. The lowest branches occur at 1-1/2 to 2 feet above the ground. In addition to training the trees into this desired form, pruning was necessary to help establishment, to control fruitfulness, to maintain health, and to renovate older trees (Thomas 1897 pp. 90-100). Most of the pruning was carried out between the beginning of February and the end of May (Cone docs. item 1:2/6/1900 to 5/23/1900), but there was also some summer pruning or "pinching" to control fruit production.

The orchards were hoed two or three times between mid-May and the end of July in 1900 (Cone docs. item 1). Clean cultivation was a recommended practice which prevented root competition and conserved moisture (Thomas 1897 pp. 77-89), but on steep slopes it could lead to soil erosion. Mulford noted that hoeing in China Orchard had left tree roots exposed (Cone docs. item 1:8/28/1900). Perhaps for this reason hoeing seems to have been discontinued in later years, and the orchards left in grass. Fertilizers were added during hoeing, see table 4. In 1900, 2-1/2 tons of fertilizer were used in Flat Top Orchard, two tons in China, and one ton in Green Park (Cone docs. item 3).



Sequence of Views

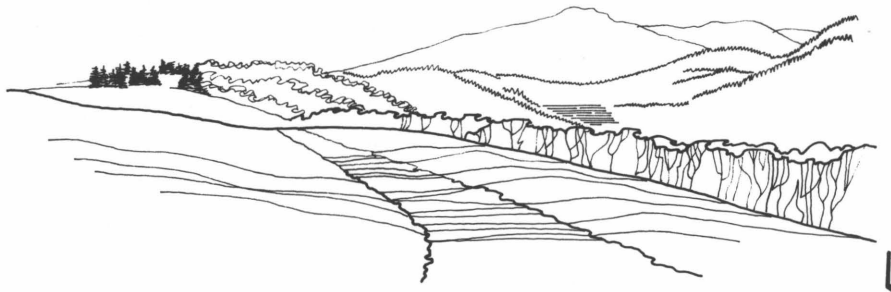
A - B	Forest scenery
B - C	Filtered view across Trout Lake
C - D	Forest scenery
D - E	Views across pastures and glimpse of Grandfather Mountain
E - F	Forest scenery
F - G	Panorama of estate from spiral road
H - J	Forest and glade scenery in deer park

Moses H. Cone Memorial Park

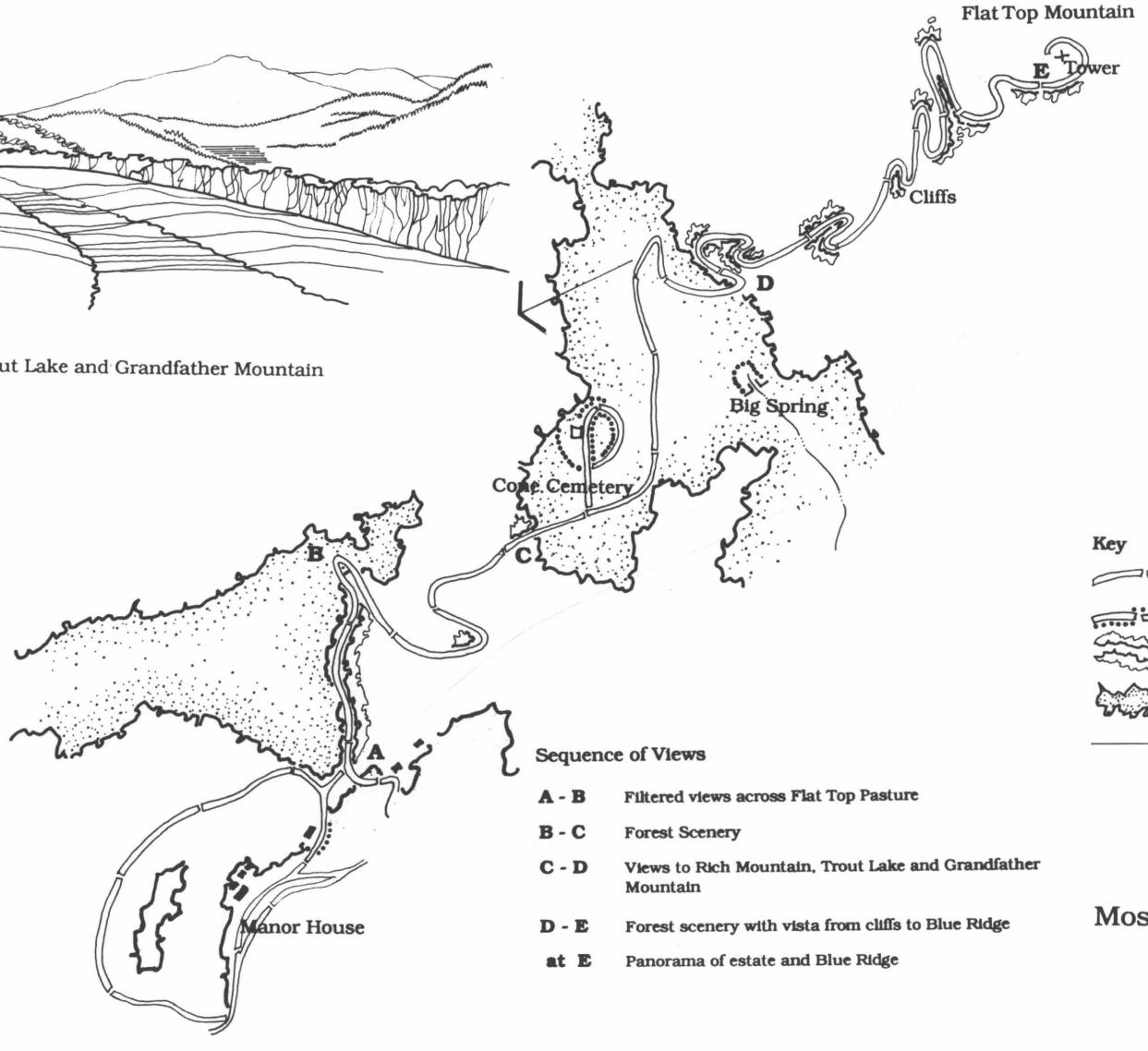
Map 12

Trout Lake & Rich Mountain Roads

drawn by: IJWF
date: 3/30/90



View to Trout Lake and Grandfather Mountain



0 0.25 miles

0 0.4 kilometers

Key

- Carriage Road
- Line of Trees
- Line of Rhododendrons
- Pasture and Meadow
- Viewpoint for Sketch

Sequence of Views

A - B	Filtered views across Flat Top Pasture
B - C	Forest Scenery
C - D	Views to Rich Mountain, Trout Lake and Grandfather Mountain
D - E	Forest scenery with vista from cliffs to Blue Ridge
at E	Panorama of estate and Blue Ridge

Moses H. Cone Memorial Park

Map 13

Flat Top Road

drawn by: IJWF
date: 3/30/90

turned in as green manure (Cone docs. item 1:5/16/1900 and 5/23/1900).

When the orchards were left in grass, they were mowed by scythe in most areas because of the steepness of the slopes (Downs 7/19/89). Most of the orchards were unfenced, and stock was not normally grazed in them. However, employees living in China Orchard were allowed to tether cows near their homes.

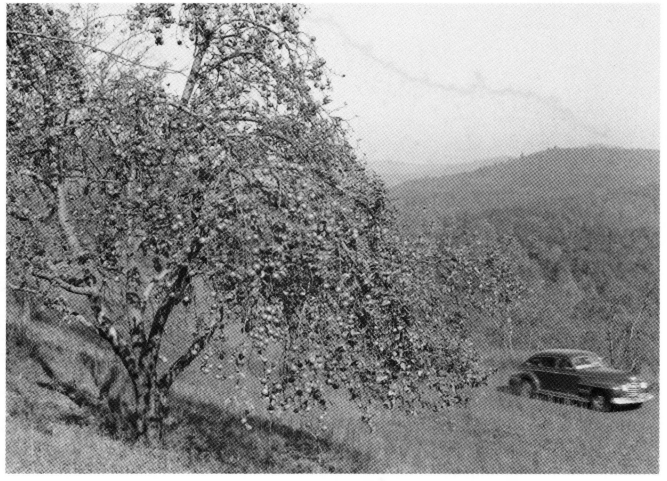
Spraying the trees to limit damage by insects and diseases was one of the most time-consuming tasks in the orchards. Spraying began in April and continued into early September (Cone docs. item 1:4/30/1900-10/1/1900). Mulford mentions three common destructive insects in the orchards, namely aphis (ibid: 4/3/1900 and 6/29/1900), oyster shell bark lice (ibid: 4/23/1899), and borers (ibid: 7/28/1900 and 9/11/1900). In addition, rot and anthracnose were damaging the grapes (ibid: 7/10/1900 and 8/11/1900). A variety of sprays were used. Mulford gives the formulae for four sprays--a bordeaux mixture, a tobacco mixture, a kerosene emulsion, and a copper sulphate solution, see table 5. Whale-oil soap was also used in the early years (Cone docs. item 12). In later years these formulae were replaced with others as the agricultural chemical industry developed. Bertha Cone consulted the North Carolina State Horticulturalist in 1910 for the latest information on effective treatments (Cone docs. item 132).

The sprays were mixed and stored in spray houses. One was located above Flat Top Orchard near the blacksmith's shop and another in China Orchard. C. T. Isenhour, who was the estate blacksmith and carpenter, also mixed the sprays (Beeler et al. 1980 p. 11). Knapsack sprayers and barrel sprayers were used in 1900 plus a "spraying machine" (Cone docs. item 3: inventories 12/6/1899 and 10/15/1900). Clyde Downs remembers a two-wheeled cart drawn by oxen with a man on each side spraying a row of trees (Beeler et al. 1980, p. 11). This was replaced in the late 1920s by a horse drawn cart with a gasoline powered sprayer, capable of reaching several rows on each side at one time (ibid). Water for diluting the sprays was available in tanks and barrels located in each orchard (Downs 7/19/89). Spraying was regarded as a skilled job, like grafting, and was paid at a higher rate than other work (Cone docs. item 10:1905).

Damage caused by rabbits was mentioned several times by Mulford, who tried applying axle grease to the trees and setting traps (Cone docs. item 1:1/4/1900 and 1/30/1900). One of Moses Cone's memos to J. D. Brown in 1904 reads:

> Allow no one with a gun on place unless hunting rabbits for Underdown
> (Cone docs. item 132:10/21/1904)

The Daybook for the same period records payments of 1/2 cent per rabbit scalp made to some of the hands and their children (Cone docs. item 10, e.g. 3/31/1904).



Photograph 24
Flat Top Orchard--area above Macadam Road
Date October 1946
BRP negative #8896 (620HW)

The different apple varieties ripened at different times. Most of the commercial production was of late varieties which ripened in the fall. When the picking season arrived all the employees on the estate plus their wives and sons were wanted in the orchards, and extra hands were hired (Isenhour 5/29/75 and Beeler, et al., 1980, p. 12). The apples were stored in several barns--there were three in China Orchard and one in Green Park as well as the main barn at Saw Mill Place, see photograph 26. Most of the grading, packing, and shipping was done at the main barn, but in some years apples were also sold from the engine house at the top of the China Orchard tramways.



Photograph 25
Flat Top Orchard--area near Duncan Road
Date 1976
BRP negative #8315



Photograph 26
Saw Mill Place--Apple Barn
Date Unknown
BRP negative #B208A

Boxes of apples were shipped to Bertha Cone at her winter home in Baltimore and to various friends and members of the family (Cone docs. items 128 and 129). The price of apples is the main subject of the letters from Bertha Cone to E.G. Underdown in 1913. Bertha Cone was annoyed that the price obtained from her agents in Lenoir was considerably less than the price in Baltimore (Cone docs. items 120 to 127).

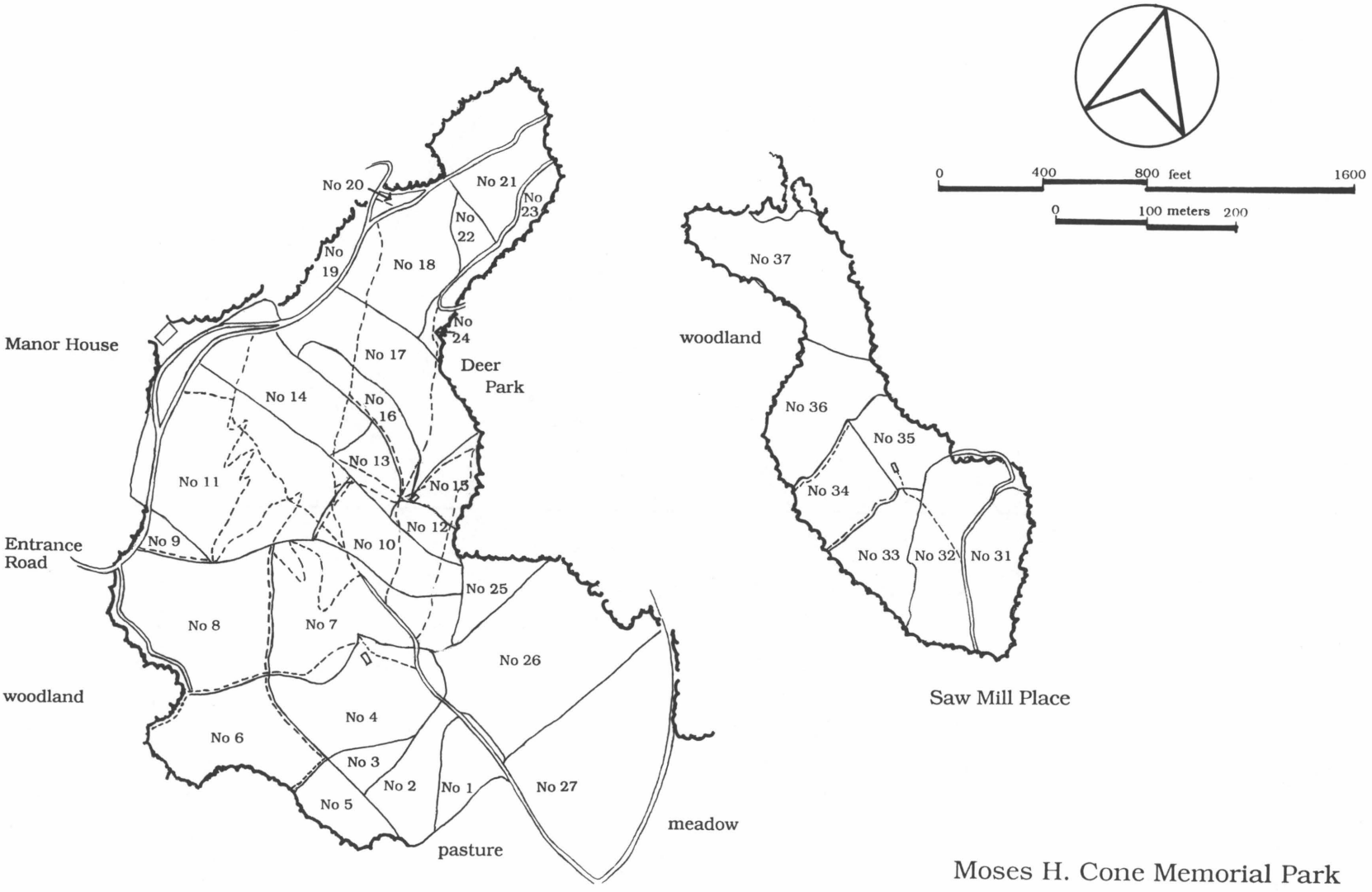
Employees remember the crop being between forty and fifty thousand bushels of apples in a "good" year (Hollers 10/2/75 and Coffey 4/12/80 in Beeler 1980, and Yoder 1949, p. 53). The orchards probably contained between seven thousand and ten thousand apple trees after the fillers were removed, so the

average production in a good year was around five bushels of apples per tree. While this rate of production is rather low--under favorable conditions a standard tree might be expected to produce over twenty bushels--the Cone orchards were more productive than most in the region. The average production in North Carolina was only 1.3 bushels of apples per tree in 1910 and 1.6 bushels per tree in 1925 (Department of Commerce 1910, p. 232, and 1925, p. 308). The aerial photographs show that over one third of China Orchard no longer had apple trees by 1940, see also photograph 27. The poor soils on the steep rocky slopes were probably an important factor in the decline of the orchards. But in their early years the estate produced some very high quality apples. There are records of prizes from several national and international exhibitions, including ones in Paris in 1900 and St. Louis in 1904 (Cone docs. items 36, 37, 38 and 132).



Photograph 27
China Orchard--northwestern slopes
Date unknown
BRP negative #62/63

Management of the apple orchards was labor intensive. In the early years setting trees occupied a large proportion of the estate workers' time, but as the orchards matured, spraying and gathering became the most time consuming activities. It is not possible to say exactly how many were employed in the orchards at any particular time, because the payrolls only specify the type of work when it involved a special hourly or daily rate. In May 1910, for example, payroll records indicate that ten workers were paid $1.00 per day for spraying, and two workers were paid $2.25 per day for operating a team, probably the oxen which pulled the spray cart. But the jobs for which another twenty-two workers were paid 75 cents per day are not described, and some of these may have also been in the orchards (Cone docs. item 4:5/31/1910). The number working in the orchards obviously fluctuated with the seasons. At picking time (when women, children, and temporary workers were hired), there may have been nearly a hundred persons employed.



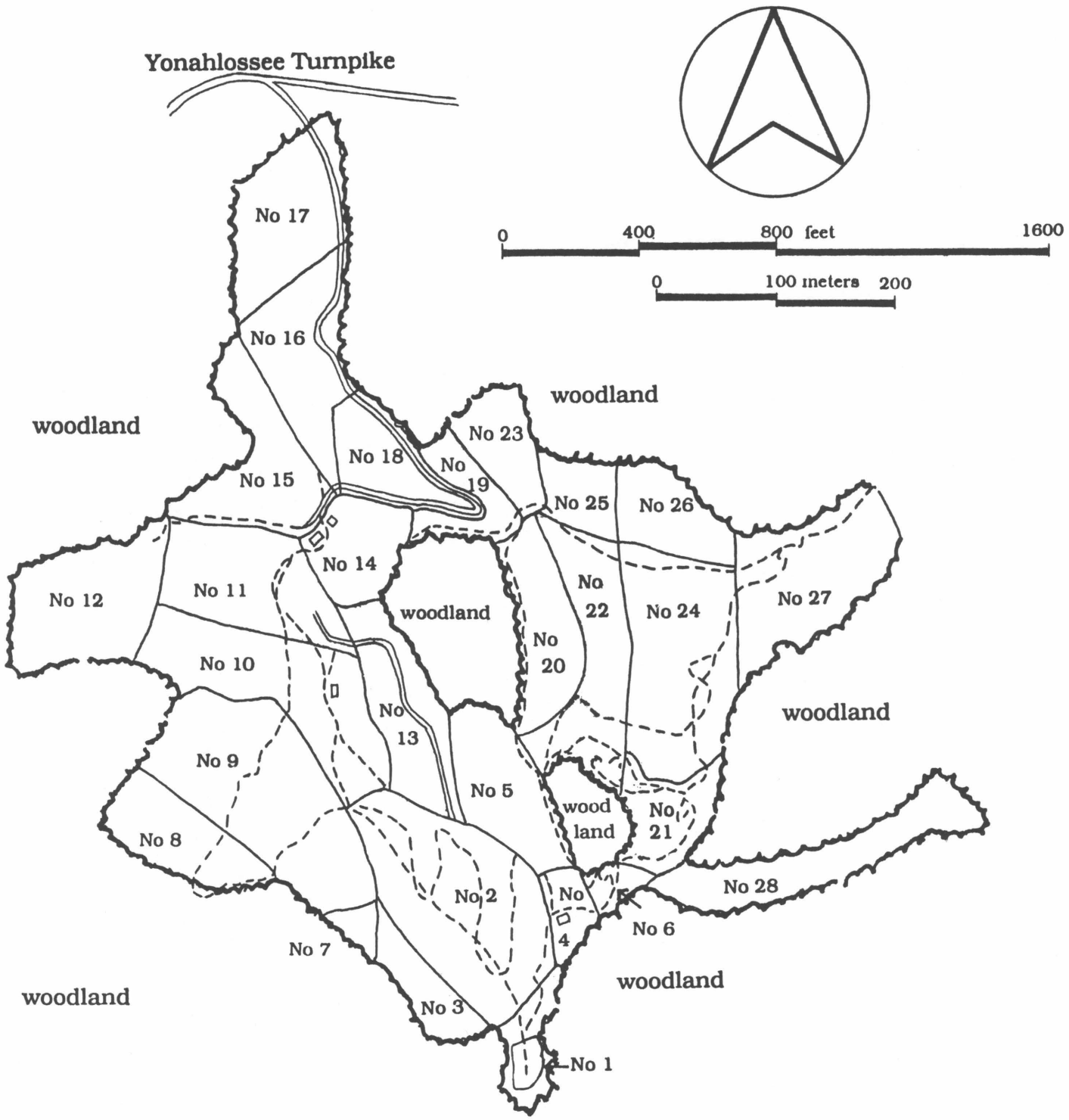
Moses H. Cone Memorial Park

Map 14

Flat Top & Saw Mill Place Orchards: Key to 1900 Survey

drawn by: JM checked by: IJWF
date: 9/30/89

Mulford's key to his orchard maps - see appendix 1 - has been corrected to match a USGS base map.



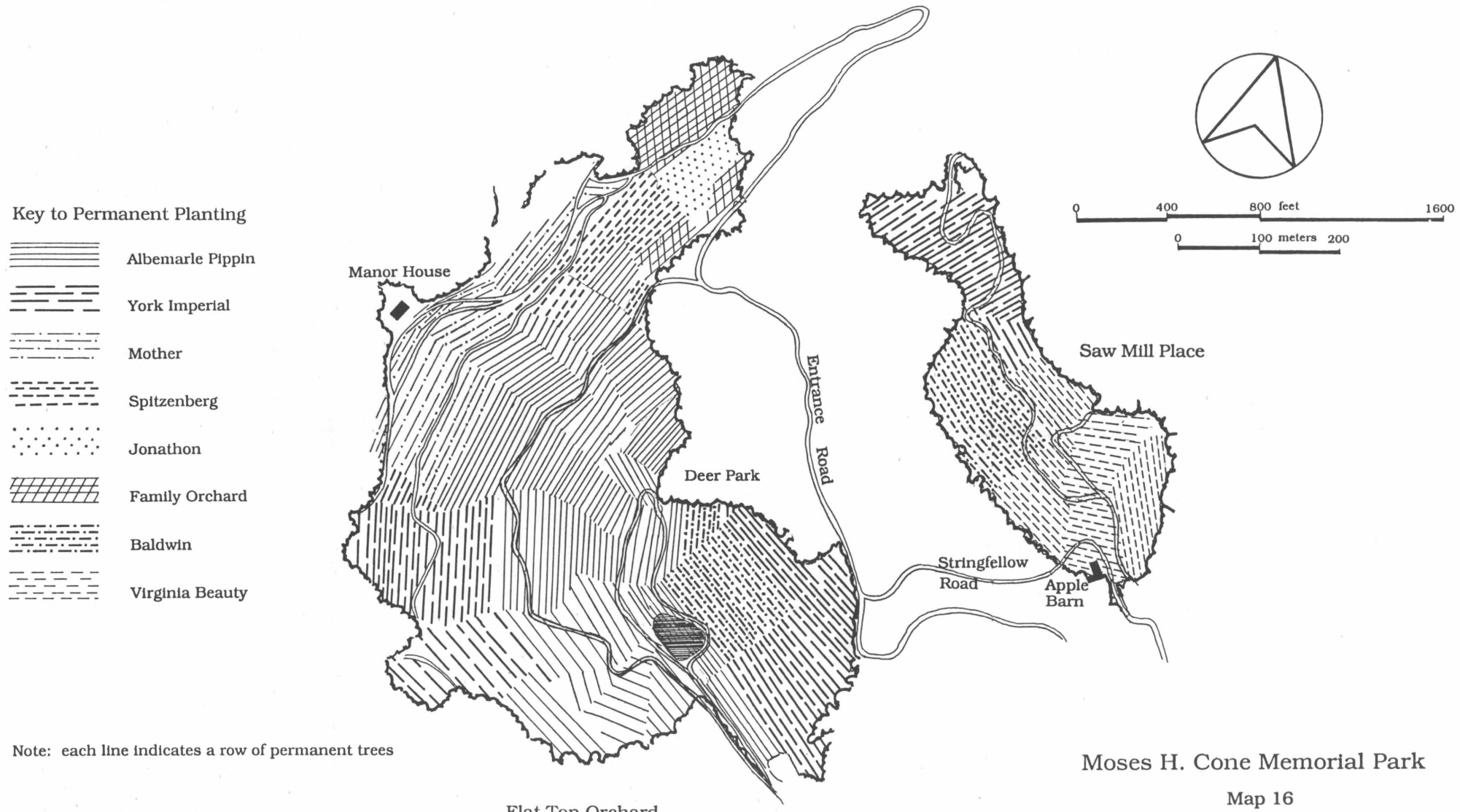
Moses H. Cone Memorial Park

Map 15

China Orchard : Key to 1900 Survey

Mulford's key to his orchard maps (see appendix 1) has been corrected to match a USGS base map.

drawn by: JM checked by: IJWF
date: 9/30/89



Note: each line indicates a row of permanent trees

Flat Top Orchard

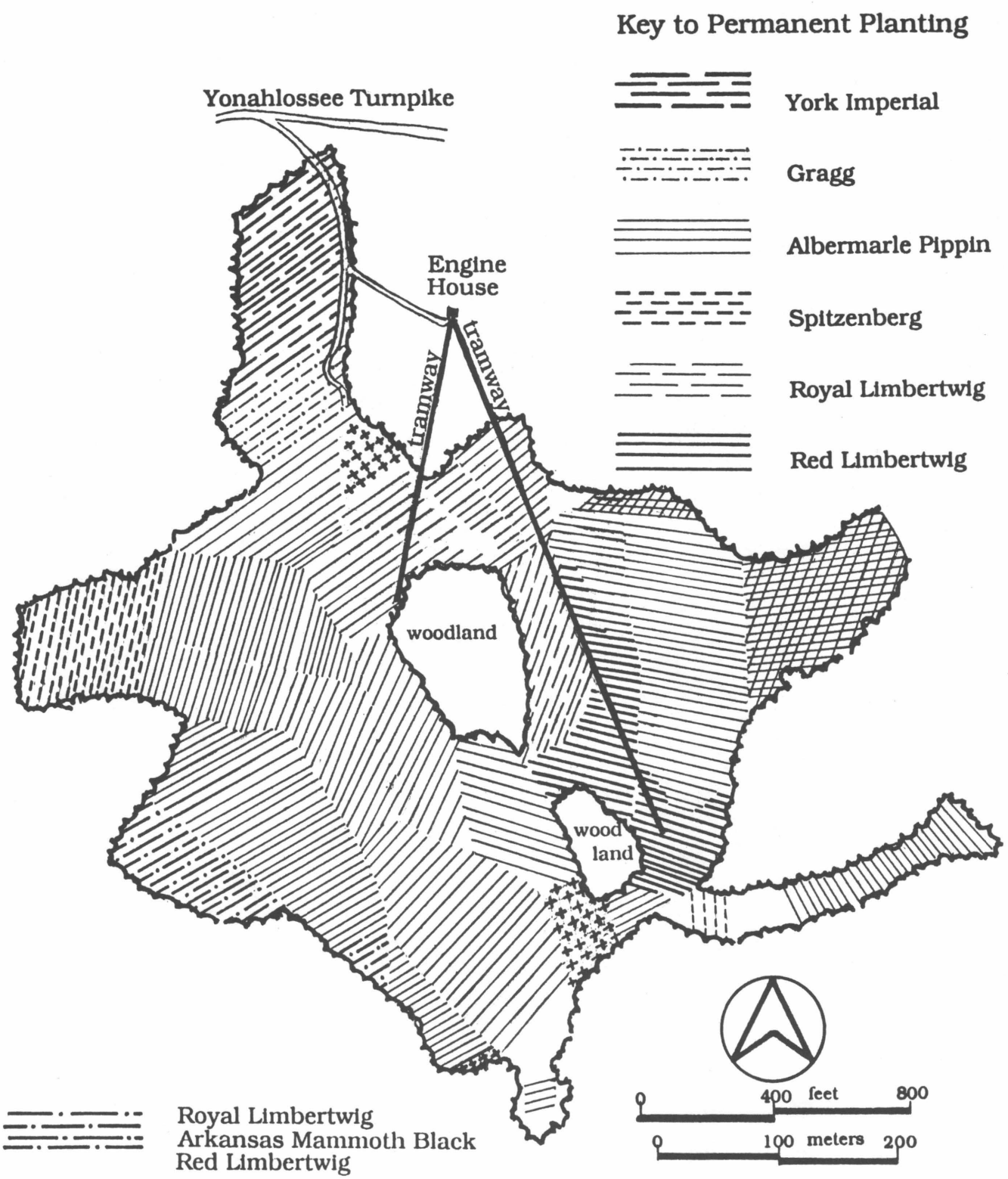
Source: Orchard Survey 1900 F.LMulford - see appendix 1

Moses H. Cone Memorial Park

Map 16

Flat Top & Saw Mill Place Orchards: Layout & Composition

drawn by: JM checked by: IJWF
date: 9/30/89



Moses H. Cone Memorial Park

Map 17

China Orchard: Layout & Composition

drawn by: JM checked by: IJWF
date: 9/30/89

PASTURES AND MEADOWS

Location--The location and configuration of the pastures and meadows in 1940 are shown on map 6. At that time their total area was nearly five hundred acres. The acreage had been somewhat greater in 1900. The area around Bass Lake had been open, until it was planted in white pines, and there were other smaller areas which appear in the 1940 aerial photographs as second growth woodlands.

Most of the open fields had been cleared before Moses Cone acquired the land. The stump pulling referred to in Mulford's diary seems to have been concentrated in orchard areas, but there are diagrams of land cleared which may not have been for orchards (Cone docs. item 1, p. 57). Downs believes some land on Rich Mountain was cleared by the Colt family before Cone came into possession of the area in 1900 (Downs 11/21/1975).

Flat Top Meadow was the only field used exclusively as a meadow. There is no sign of a fence line around this field except beside the pasture below the Big Spring. Elsewhere the fields were primarily pastures, although some also produced hay and tillage crops in the early years. Nearly all these pastures were fenced to allow free range grazing.

Site Characteristics--Despite the description of the mountains as "a paradise for the stock raiser, the dairyman and the fruit grower" by the State Board of Agriculture (see p. 39), the area had several drawbacks. The short grazing season--from the beginning of May to the end of October--and the wet climate made the management of grazing animals difficult during the winter months. It was necessary to confine them and feed them hay most of the winter. The steepness of the slopes restricted the operation of machinery for mowing or spreading fertilizers and exacerbated the problem of soil erosion. The soils on the estate were acidic and generally of little agricultural value. The only substantial area which rated highly in the Soil Survey is in Flat Top Meadow (Soil Conservation Service 1944). Even here the stoniness of the soil was a problem; clearance was in progress in 1900, and piles of stones can be found in the adjacent woods today (Cone docs. item 1:5/7/1900).

The mountains did however present a plentiful supply of water. Most pastures on the estate had either a spring or stream for watering the stock. Beside the streams and around the edges of the pastures, the stock could find shade trees in the summer, see photograph 28. The surrounding forest also provided wood for fences.



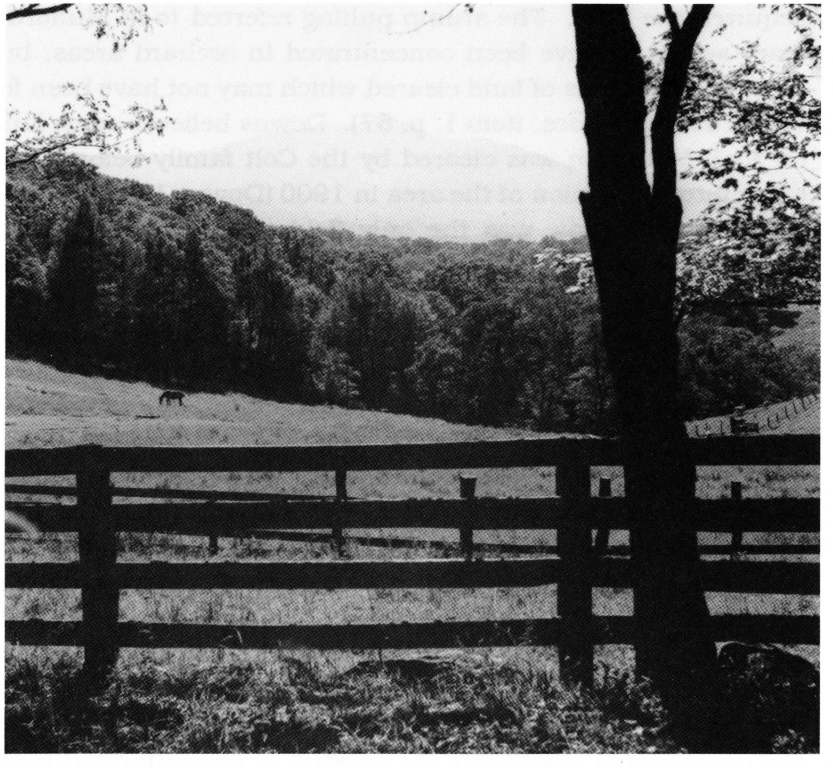
Photograph 28
Flat Top Pasture
Date 1946, Photographer Rowe
BRP negative #286

Grassland Composition--A detailed vegetation survey of the grasslands has not been made, but their composition today appears to be very varied, reflecting differences in physiography, history and use. This was probably equally true in the historic period. Some of the pastures were reseeded periodically. Mulford recorded the composition of five grass mixtures--a mowing mixture, a pasture mixture, two woodland mixtures, and a roadside mixture, see table 6 (Cone docs. item 1, pp. 31 and 32). Clyde Downs remembered that fields were reseeded when they were not "producing properly," often using oats undersown with a grass mixture (Downs 7/19/89). Fertilizers were also applied to improve productivity using the same mixture as was used in the orchards, see table 4. Mulford recorded in his diary on May 15, 1900:

> Sowing nitrate of soda on Flat Top meadow. They have on more than 100 lbs. per acre over part. 50 lbs. are enough.
> (Cone docs. item 1:5/15/1900)

Downs recalls lime being spread on the fields, but given the problems of hauling and spreading tons of lime on the steeply sloping land, it is likely that this was done fairly infrequently. So the grassland composition probably always reflected acidic soil conditions.

Grazing Animals--In 1899 there were sheep, dairy cows and beef cattle on the estate, plus some poultry, ducks, and teams of oxen and horses (Cone docs. item 3:12/6/1899). Clyde Downs estimated that the estate kept between two hundred and three hundred Shropshire sheep (Downs 11/21/1975). The sheep were kept mainly on Rich Mountain, but Mulford's diary indicates that they were periodically moved to other pastures (Cone docs. item 1:5/19/1900). Some sheep may have grazed in China Orchard, as there was a sheep shed there in 1910 (Cone docs. item 4:11/15/1910). Downs did not remember any sheep in the orchards, but he did recall them in the pastures down Wadkins Road. The sheep were overwintered in barns below the Colt House on Rich Mountain (see photograph 29), down Flannery Fork Road, and near the brick house on Wadkins Road (Downs 7/19/89). The ewes were sheared in May, and the wool was sold. Lambs also were sold, and one was killed every couple of weeks for the family's consumption (Isenhour 5/29/75).



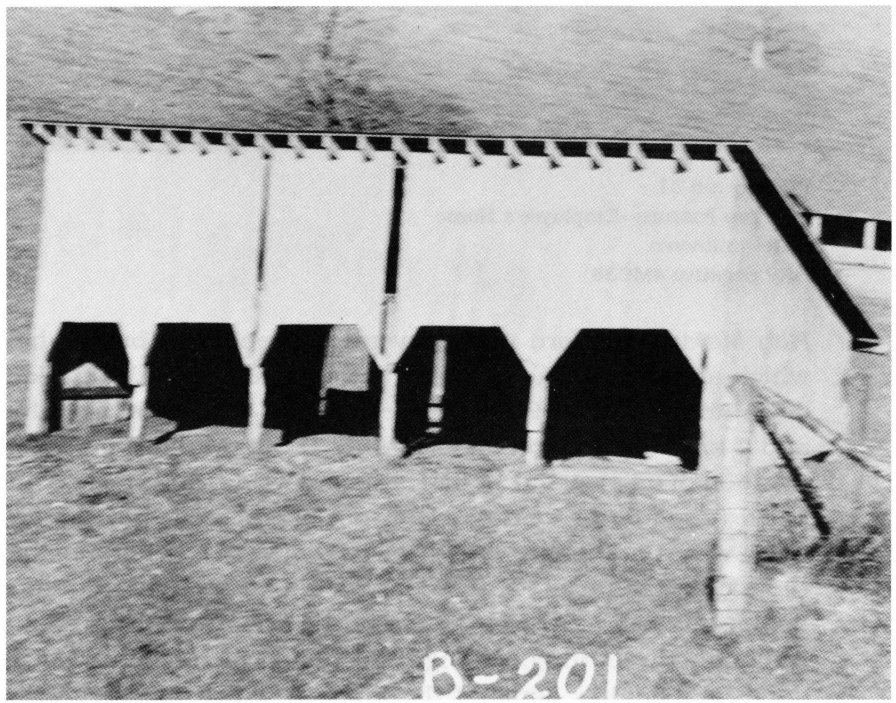
Photograph 29
Rich Mountain Pasture--area near sheep barn
Date unknown
BRP negative #MC23

Cows were kept primarily to provide the Cones with fresh milk, cream, and butter. The surplus was sold in Hickory, Lenoir, or Blowing Rock (Cone docs. items 132 and 134). In the winter, cream and butter, plus some eggs and chickens were shipped to Bertha Cone in Baltimore (Coffey no date and Hollers 10/2/75). The cows were kept in Flat Top Pasture (see photograph 30) and taken for milking to the Dairy which was built beside the Carriage House. There was a loafing yard beside the milking shed in which the cows could be confined during the winter. Lloyd Coffey became the dairyman in 1923 or 1924, and he and his wife managed a herd of between twelve and twenty Jersey cows. The cows were milked by hand even after electricity arrived (Coffey no date and Downs 7/19/89). The estate dairy became the first Grade A dairying operation in Watauga County. Each employee was allowed to pasture his own cow close to his homestead. These areas were not always fenced, as employees were allowed to tether their cows in certain areas, including the orchards (Downs 7/19/89).

During 1899 and 1900, beef cattle were being bought and sold by J. D. Brown, the farm foreman. In January 1900 Mulford noted the estate had seventy-nine head of cattle (Cone docs. item 1:1/3/1900). It is not known which breeds were kept, but Herefords were the most common breed in Watauga County in the first part of this century (Soil Conservation Service 1944). During Bertha Cone's time, however, there were few if any beef cattle kept on the estate (Downs 7/19/89).

There were five or so teams of horses kept on the estate. These were housed near the homes of the employees who worked with the teams (Downs 7/19/89 and Walters 6/5/73).

Fences--Strained wire fences ran in straight lines around the pastures. The fences were made of five strands of barbed wire stretched between braced corner posts (Cone docs. item 1: 6/19/1900), see photographs 29, 30, and 31. Posts were usually of locust (*Robinia pseudoacacia*). Some chestnut posts were used, but these proved less durable (Downs 7/19/89). Some post and rail fences were built around farm buildings. Beside the wood barn in Flat Top Pasture and around the Sudderth Farm below Sandy Flat, the fences had four rails of sawn wood, see photographs 28 and 49. Around the Colt House the fences had two rails with hog wire stretched between, see photograph 48.



Photograph 30
Flat Top Pasture--Cattle Sheds
Date unknown
BRP negative #B201



Photograph 31
Flat Top Pasture--Employee's Home
Date unknown
BRP negative #MC38

Hay Making--Mulford made several references to buying hay, which apparently was not easy to find in January 1900 (Cone docs. item 1:1/17/1900). The estate had a mowing machine, and a hay rake was on order in July 1900. Mulford makes no mention of a baler, but by 1910 the hay was being stacked and baled (Cone docs. item 4). Downs remembered that the first baler was a stationary type (Downs 7/19/89). After stacking the hay in the meadow, the baler would be brought, and after baling, the hay carted to the various barns around the estate. Although the cutting, raking, and baling of hay could all be done by machine, some of the land on which hay was made would have to be cut using hand scythes. Most of the orchards in the early days produced a hay crop, but as Flat Top Meadow came into full production this practice may have been discontinued. Hay time, like the apple harvest, was a busy time on the estate, when all available hands were required in the fields (Isenhour 5/29/1975). Employees could buy hay for their own animals, and their barns typically contained a hayloft (Beeler et al 1980).

Other Crops--Crop rotation was not common in Watauga County, but where it occurred, it was typically two years of corn or a row crop for one year then a small grain, followed by two years of hay. On poor sites two years of pasture might follow (Soil Conservation Service 1944). Mulford in his diary mentioned corn, cabbage, and oats (Cone docs. item 1:11/9/1899 and 4/29/1900). However arable rotations were never an important part of the farm enterprise and are not referred to in any of the oral histories.

Forests, Deer Parks, and Plantations

Location--Forests enclosed the orchards, pastures, and meadows on the Cone estate, see photograph 22. In the historic period nearly 75 percent of the estate had a cover of trees, not including the orchards. Most of the steeper slopes and high ridges were in forest when Moses Cone acquired the estate. To these native stands new conifer plantations were added around Bass Lake in the first three decades of this century. Parts of the native forest were enclosed as deer parks. The map of the estate in 1909 (see map 5) shows two deer parks--a large area on Rich Mountain and a smaller enclosure beside Flat Top Orchard.

Native Forests--While the forests probably contained some stands of old growth timber, they were almost certainly not in a pristine condition when Moses Cone acquired his estate. Although commercial logging operations did not come to this area of the mountains until later--the Julian Price estate was logged between 1912 and 1930--the forests had probably

suffered from small scale exploitation and widespread grazing. Moses Cone tried to stop his employees from barking trees (Cone docs. item 1:5/15/1900). This was probably to ensure the removal and sale of bark for tannin. The Cones clearly valued the forests for their beauty, which they tried to enhance by their planting program. But the forests were also used as a source of both firewood and timber.

Cutting firewood was one of the major tasks of the estate work force each winter. The Manor House was heated by two woodburning furnaces, and cooking was done on a woodburning stove (Isenhour 5/29/75). Bertha Cone also had firewood shipped to her home in Baltimore (Downs 11/21/75). At first employees were allowed to cut their own wood, but later it was cut and delivered by the estate crew for a fee of $3.00 per cord (Cone docs. item 9). Wood was also used on the estate to make charcoal for the blacksmith's shop (Cone docs. item 1:6/4/1900). The wood was cut one year in advance and stored in the wood barn in the southeast corner of Flat Top Pasture. Much of the firewood came from fallen or "scrub" trees (Isenhour 5/29/75). Chestnut trees were a major source of firewood, after they were killed by blight in the 1920s (Downs 7/19/89).

The lumber used for the construction of the Manor House, farm buildings, and employees' homes was purchased (Cone docs. item 7), but some timber was cut on the estate for repairs and minor construction jobs (Downs 7/19/89). There must have been a saw mill in Saw Mill Place at one time, but it was gone before 1900. There were, however, a number of saw mills operating in the district to which timber could be taken (Isenhour 5/29/75 and Pease 8/5/80).

The timber was extracted from areas invisible from the carriage roads (Downs 7/19/89). During the Second World War an old stand of yellow poplar was cut and sold, but this was done without Bertha Cone's knowledge (Pease 8/7/75). In general tree cutting was kept to a minimum on the estate, and when a tree was removed, a seedling was planted in its place (Pease 8/7/75).

Deer Parks--Moses and Bertha kept whitetailed deer for their ornamental value. Hunting pressure had greatly reduced the wild deer population in the mountains, so the Cones imported deer and kept them in enclosures. Clyde Downs estimated that there were over one hundred deer on the estate at one time (Downs 7/19/89). Some of the deer were imported from Pennsylvania (Crandell 1977). Others were purchased from Huntington on Long Island at a price of $35.00 each in 1912 (Cone docs. item 132).

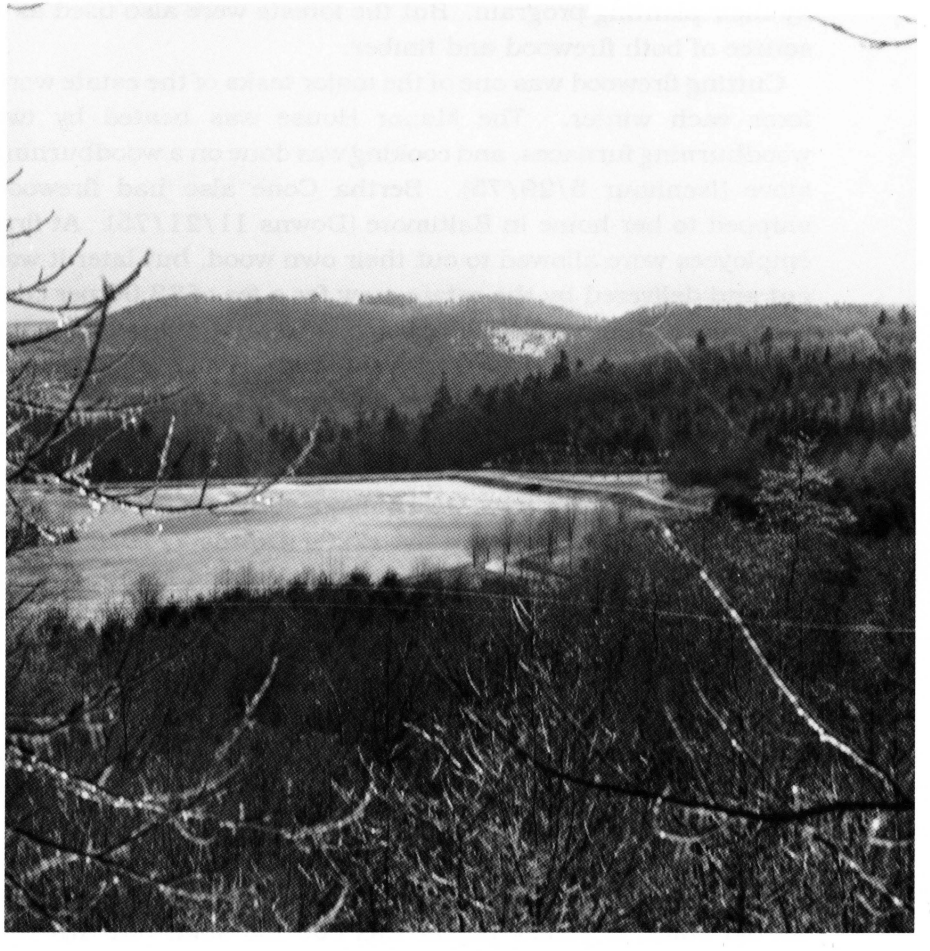
Over two hundred acres were enclosed on the top of Rich Mountain, and a carriage road was constructed through the park to a keeper's house, see map 5. The steep slopes were in forest, but the ridge top was open and had probably been used for grazing stock before Cone bought the land. The top today resembles a grassy bald with a sward of mountain oat grass (*Danthonia compressa*) and groups of spreading hawthorn trees (*Cratagus spp*). The park was surrounded by a ten foot high paling fence, and food for the deer was thrown over this into the enclosure (Downs 7/19/89).

The park beside Flat Top Orchard was much smaller--approximately fifteen acres. This was surrounded by a wire fence, so that one could look down into the enclosure from the Entrance Road. Mulford referred to the construction of this fence and building sheds for the deer (Cone docs. item 1:11/25/1899 and 12/6/1899). The area appears as a dense forest in the 1940 aerial photographs but probably had a more open parklike character in 1900. Bertha Cone sold the herd and stopped keeping deer in the 1920s (Downs 7/19/89). The reasons for that decision are not known.

Coniferous Plantations--The plantations around Bass Lake cover ninety-four acres. White pine was the main species planted but

there were small areas of Fraser fir, Norway spruce, and hemlock south of the lake, see map 8. The planting was done at various times. The oldest pine stands to the north of the lake were planted during Moses Cone's lifetime. The age of a white pine on the northwest side of the block of Norway spruces has been determined to be approximately ninety-three (plus or minus six) years (White 8/22/89). It was planted after 1900, however, as that area was shown as a meadow in Mulford's orchard maps, see appendix 1. The youngest stands of pine and fir to the south of the lake near the Turnpike Road were probably planted in the 1920s (White 8/22/89). Clyde Downs remembers planting white pines in 1916 (Downs 7/19/89). The Norway spruces and hemlocks beside the lake were planted about that time. The age of one Norway spruce has been determined to be sixty-seven (plus or minus three) years (White 8/22/89).

Over the years trees were purchased from several different areas. In 1900 most of the plants listed by Mulford were purchased from Kelsey's nursery at Linville. But in 1910 for example, Bertha Cone purchased some hemlocks and Fraser firs from Ohio (Cone docs. item 132). The planting patterns also changed over the years. In the oldest plantations the pines are widely spaced, between twenty and thirty feet apart, and are not in straight lines. In the youngest stands pines and firs were planted between ten and fifteen feet apart and are in a square grid. The low density in the older stands suggests that they were not intended to be a commercial crop. The wide spacing allowed the pines to develop deep crowns which would yield only knotty second grade lumber. Moreover the absence today of any understorey trees older than about forty years in several stands suggests that these areas were mowed to give a parklike character while the stands were young. The higher densities near the Turnpike Road might reflect a desire to provide a screen between that road and the Duncan Road. This area was underplanted in rhododendrons. Given Bertha Cone's dislike of tree cutting in general, it seems unlikely that she intended to harvest any of the plantations. The blocks of Norway spruces, hemlocks, and firs on the south side of Bass Lake were clearly part of the ornamental treatment of that area, see photograph 32.



Photograph 32
Conifer Plantations south of Bass Lake
Date December 20, 1934
BRP negative #10,212

LAKES AND PONDS

Size and Location--Bass Lake occupied a very prominent position on the estate below the Manor House and close to one of the main entrances. It was the larger of the two lakes on the estate with a surface area of over twenty-one acres and a maximum depth exceeding thirty feet. Trout Lake on the headwaters of Flannery Fork at the foot of Rich Mountain had a surface area of fifteen acres and a maximum depth of about twenty-three feet. There were some small ponds above and to the northwest of Bass Lake--an Upper Pond in the middle of Flat Top Orchard and two pools in the shape of a heart, where the stream from the orchard ran into the lake. There was another small pool above and to the northwest of Trout Lake, where the stream from Rich Mountain crossed the Rich Mountain Road at a hairpin bend, see maps 5, 6, and 8.

Construction--Both lakes were impounded in the early years of this century. Mulford in 1900 refers to a proposed lake below Flat Top Orchard (Cone docs. item 1:1/25/1900). A construction date of 1903 has been given for the Trout Lake dam (Kiener 1948). Both lakes are shown in W. G. Potter's 1909 map. Potter was probably the engineer who advised Cone on the construction of the dams (Pease 8/5/80). The lakes were impounded by earth dams with clay cores. The one at Bass Lake was some five hundred feet long and thirty feet wide at the crest and carried the Entrance Road, see photograph 33. The Trout Lake dam was both shorter and narrower but also carried a carriage road. The earth for the dams appears to have been taken from the sides of each lake bed, as tree stumps remain along the bottom of each bed to this day. A timber diaphragm was installed through the center of the Trout Lake dam to frustrate crawfish (Kiener 48). There was probably a similar device in the Bass Lake dam. According to Potter's Map (see map 5), each dam had a spillway to take floodwaters and a sluice gate to allow them to be drained.

In 1916 the central part of Trout Lake dam was washed out in a flood. A landslide blocked the spillway causing the floodwaters to overtop the dam (Pease 8/5/80 and Kiener 1948). The dam was not reconstructed during the historic period, and the floor of the lake was used as a pasture (Downs 7/19/89). Some reconstruction work was done around 1935 on Bass Lake dam (B.R.P. no date), and it may have been at this time that a tower was built in the lake from which the sluicegate could be operated. Ruby Moody Walters recalled her father having to operate the sluicegate during a flood in 1940 (Walters 6/5/75).



Photograph 33
Bass Lake--the dam
Date July 13, 1947, Photographer Weems
BRP negative #7569 (894F)

The Upper Pond in Flat Top Orchard is shown in the 1909 map, but the heart-shaped pools are missing, so they were probably constructed during Bertha Cone's management of the estate. The Upper Pond was retained by an earthen dam, but the pools were stone-lined tanks on either side of the stream from which they were separated by stone walls. They were filled by water diverted upstream and piped underground (Redmon 9/8/89). The pool on the Rich Mountain Road was also surrounded by a stone wall, but it is not known whether there was a stone floor. A small cascade was built of cut stone to convey the water from the pool into a tunnel below the carriage road. This pool was constructed in Moses Cone's lifetime, as it is shown on the 1909 map.

Use and Management--The lakes were constructed to embellish the landscape. Bass Lake lay in the center of the view from the Manor House, and carriage roads ran around both lakes. Each had an outline of picturesque irregularity, and Bass Lake had an island near the middle as a focal point. Fragrant waterlilies (*Nymphaea odorata*) grew in the shallows of Bass Lake, see photograph 34. A photograph taken in 1934 (see photograph 35) shows some young conifers placed at intervals around the margins of Bass Lake, but otherwise the edges were in grass. These grass slopes were closely mown and the surrounding areas with their ornamental plantings were carefully maintained (Hollers 10/2/75 and Walters 6/5/75). The edges of Trout Lake, in contrast, were left in forest with a dense understory of rhododendron. But the overgrown character of the area as seen in the 1940 aerial photographs may be attributed to the loss of the lake in 1916.

The Upper Pond acted as a sediment trap for Bass Lake, but it also provided a point of interest in the middle of the orchard. The heart-shaped pools and the cascade pool were strategically located, where a carriage would slow to negotiate a junction or a bend.



Photograph 34
Bass Lake--water lilies
Date July 13, 1947, Photographer Weems
BRP negative #3646



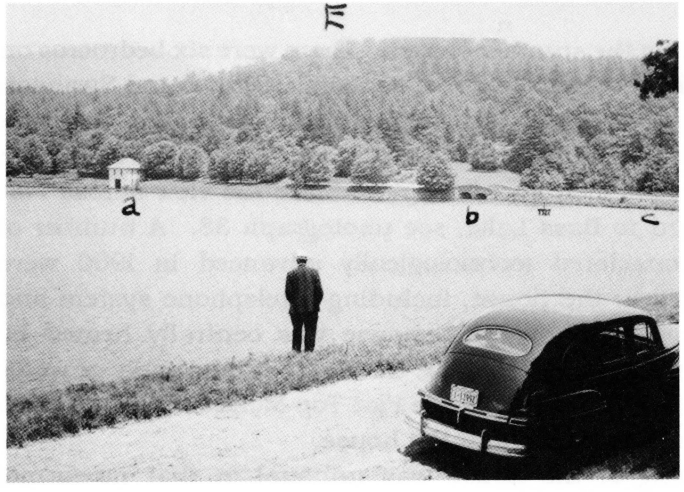
Photograph 35
Bass Lake--view to the north side
Date December 20, 1934
BRP negative #10,211

As their names suggest, the lakes were stocked with bass and trout (Hollers 10/2/75 and Downs 7/19/89). The fish were hatched in tanks beside the stream in Flat Top Pasture (Downs 7/19/89). The heart-shaped pools had trout put in them, so the fish could be seen and enjoyed by visitors. The hemlocks around the ponds may have been planted to provide some shade.

Employees would catch fish for Bertha Cone each Thursday or Friday while she was in residence (Walters 6/5/75), but fishing was forbidden to the public. It is not known what effect, if any, the spraying programs in Flat Top Orchard had on the quality of the water in the ponds and lakes below. According to Clyde Downs the Upper Pond was sometimes stocked with trout, and it seems likely that any pollution would have been concentrated there.

In addition to fish, the lake provided ice in the years before refrigeration. Ice was cut from Bass Lake each winter and taken to the ice house behind the Manor House. There it was stored in boxes insulated by sawdust until the summer (Isenhour 5/29/75 and Walters 6/5/75). There was also a small ice house at the lake (Cone docs. item 132).

There was a boat house on the northern shore of Bass Lake, see photograph 36. When the NPS acquired the estate, there were two or three canoes and some boats in the house, but none had been used in a long time (Pease 8/7/75). The public was not allowed to go boating or swimming, but Ruby Moody Walters remembered people swimming where they could not be seen from the Manor House (Walters 6/5/75).



Photograph 36
Bass Lake-- a)Boathouse; b) Spillway; c) Dam
Date July 13, 1947
BRP negative #9488 (894e)

Buildings and Gardens

The Manor House and Its Gardens--The Manor House was sited about a mile from Sandy Flat and the Yonahlossee Turnpike. It was a well chosen site. A hill provided some shelter from northern winds, and the elevation gave extensive views to the south and east. The site was near the center of the estate, but was readily accessible from public roads. Almost certainly there was no earlier homestead in this location as it is removed from any spring or stream.

The house was under construction in 1899 and 1900. Invoices for many of the building materials survive in the Cone documents collection (Cone docs. item 7). One W. A. Fries acted as Cone's agent during the building operations, but no record has been found to indicate who was the architect. The mansion is large, but not palatial, with a floor area of 13,795 square feet, see photograph 37. It could accommodate several

guests during the summer season. There were six bedrooms on the second floor and four full bathrooms (Gilbert and Swanson in Buxton 1987). The large porch which runs around the front and sides of the building provided a vantage point from which the Cones and their guests could admire the view across Flat Top Orchard to Bass Lake, see photograph 38. A number of features considered technologically advanced in 1900 were incorporated in the house, including a telephone system and acetylene gas lighting. The house was centrally heated by forced air from wood furnaces, and a plentiful supply of water was piped from a spring beside Flat Top Meadow and stored in three wooden tanks behind the house.

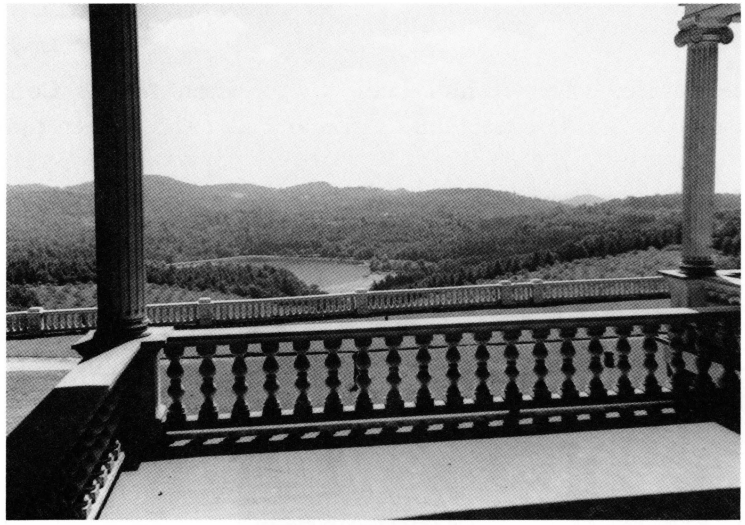
The setting of the house was unusual in that no formal gardens and almost no ornamental plantings were added. Instead the neocolonial mansion sat above an orchard with a backdrop of native forest trees. Immediately in front of the house, a lawn provided a level Esplanade above the orchard. A wooden balustrade, matching the one around the porch, marked the edge of this Esplanade. In Mulford's diary he noted that rock was being hauled to this area for several weeks in 1900, presumably to create this level surface (Cone docs. item 1: 1/10/1900 and 4/19/1900). Beyond the balustrade the ground fell sharply to a stretch of carriage road below, see photographs 39 and 40. This slope was originally planted in apple trees--an upper row of North Carolina Beauty and a lower row of Mother apples with Magnum Bonum as the filler, see appendix 1. Beside the lower carriage road there were some red rambler roses trained on a pergola (Downs 7/19/89). It is not known when these were planted, but they were not there in 1900.

To either side of the Manor House forest trees, mostly oaks, remained to shelter and enfold the structure. These were underplanted with rhododendrons. Immediately behind and above the house was the building which housed the carbide plant, the laundry, and the ice house, see photograph 41. To one side were the male and female servants' quarters. The area around these buildings was kept as a lawn shaded by oaks and maples, see photographs 42 and 43.

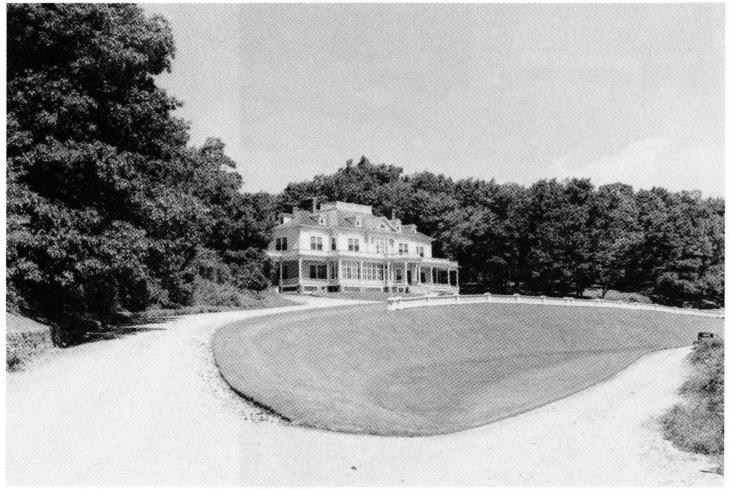
There were two gardens, each a little over two acres in size, close to, but hidden from, the Manor House. To the northeast lay a terraced fruit and vegetable garden on the slope below the Carriage House. This garden area was being cleared of stones in January 1900 and was planted that April (Cone docs. item 1: 1/24/1900 and 4/27/1900). The contents of the garden in that first year are listed in table 7. A hot bed had been built to grow early vegetables. The bed was a series of frames protected by glass (Cone docs. item 3). It was probably built against the uppermost retaining wall beside the manure shed. The vegetables growing in the bed in March 1900 are listed in table 8. At first the terraced garden was entirely given over to fruits and vegetables, but later some flowers were grown there. Some climbing roses and an iron pergola remain in the garden today. One of the roses is a *Rosa wichuraiana* ("Dr. W. van Fleet"), which was not introduced until 1910 (McFarland 1952).



Photograph 37
Flat Top Manor House
Date Unknown, Photographer Rowe
BRP negative #320



Photograph 38
View from the porch of the Manor House
Date 1946, Photographer Rowe
BRP negative #286 (933CT)



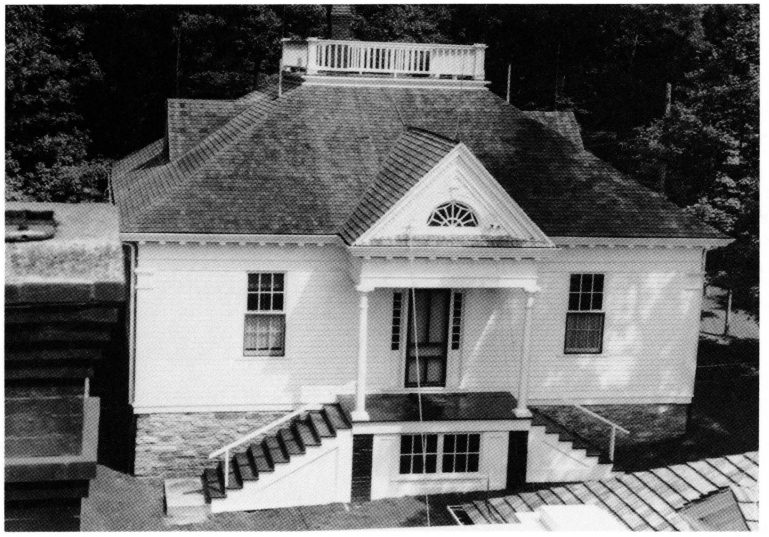
Photograph 39
Approaching the Manor House from the south
Date 1940s, Photographer Rowe
BRP negative 8910 (986CU)



Photograph 40
Approaching the Manor House from the eat
Date 1940s, Photographer Rowe
BRP negative #8911 (933 986CV)



Photograph 41
Laundry House and Servants' Quarters behind the Manor House
Date unknown
BRP negative #5182 (894B)



Photograph 42
Laundry House
Date July 13, 1947, Photographer Weems
BRP negative #5184 (894C)

The other garden was located to the west of the Manor House and was screened from view by some white pines and rhododendrons. In 1900 it was being used as a nursery and various types of grasses were being grown, presumably for their seed (Cone docs. item 1 p. 45). It later became a flower, fruit, and vegetable garden. At the northern end rows of peonies (*Paeonia lactiflora*) were planted to provide cut flowers for the house. Beside the peonies was a grass tennis court and croquet lawn. These were constructed in 1900 (Cone docs. item 1: 8/18/1900). Nearby was a long wooden bowling alley, see photograph 44. A path led from the back of the house to the garden and these recreation facilities. It became known as the "Figure 8 walk," because it described a couple of loops in the trees beside the garden. Rhododendrons were planted beside the path, which provided Bertha and her guests with a shaded walk near the house.

Employee Housing--There were thirty-five houses for employees on the estate. Eleven had been there when Moses Cone acquired the land (Buxton 1987 Appendix L). The homes that Cone built were simple frame structures, clad with vertical boards and battens or with weatherboards, and were of varying size and shape, see photographs 45, 46, and 47. Some of the earlier buildings which Cone acquired were more substantial. For example the Colt House on Rich Mountain and the Sudderth House beside Sandy Flat had two stories and a number of outbuildings, see photographs 48, 49, and 50. The homesteads were usually located close to a spring or stream on the edge of an open space. Cone's agreements with his employees allowed them to live rent free and to have the use of a barn and one acre for a garden and pasture (J. D. Brown ledger 1905-08 in Buxton 1987).



Photograph 43
One of the Servants' Quarters
Date September 1948
BRP negative #7561 (935DC)

Some of the employees' gardens were developed away from their homesteads in areas where the soil and aspect were more favorable. Such was the case, for example, in Flat Top Pasture where the homes were located in the hollow, but the gardens were on the shoulder of the hill, see map 6.

The area used as a pasture was usually a part of a larger field or orchard in which the employee's cow was tethered (Downs 7/19/89). Consequently most of the employees' homes had no fenced areas to separate a private domain from the larger expanse of field or orchard around them. Some of the homes were visible from the carriage roads, and Bertha Cone expected them to be kept clean and in good repair (Downs 7/19/89 and Isenhour 5/29/75).



Photograph 44
Bowling Alley
Date unknown
BRP negative #B297 (968B)



Photograph 45
Employee's Home in Flat Top Orchard
Date unknown
BRP negative #MC48



Photograph 46
Employee's Home in Bridge Meadow
Date unknown
BRP negative #MC47



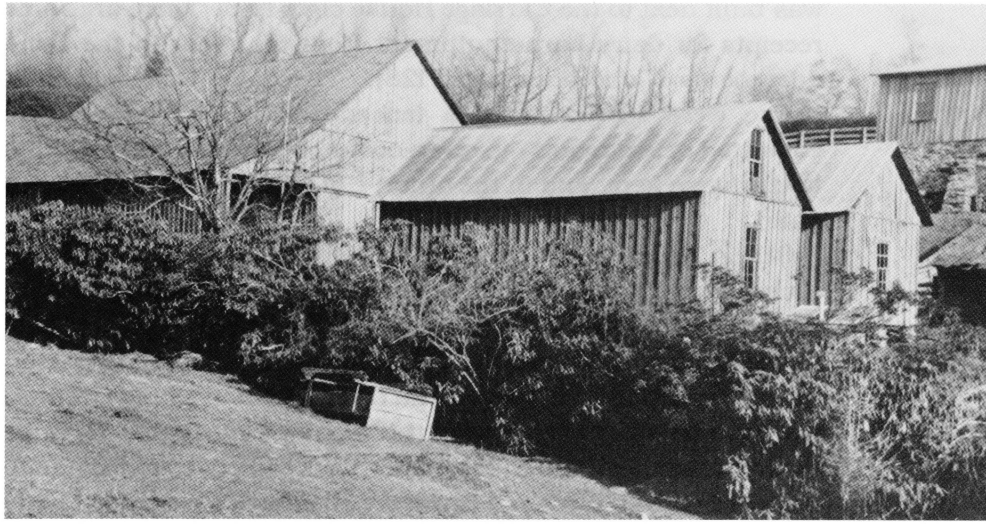
Photograph 47
Employee's Home in Saw Mill Place
Date unknown
BRP negative #MC57



Photograph 49
Sudderth House
Date unknown
BRP negative #B213A (992M)



Photograph 48
Colt House
Date unknown
BRP negative #MC20



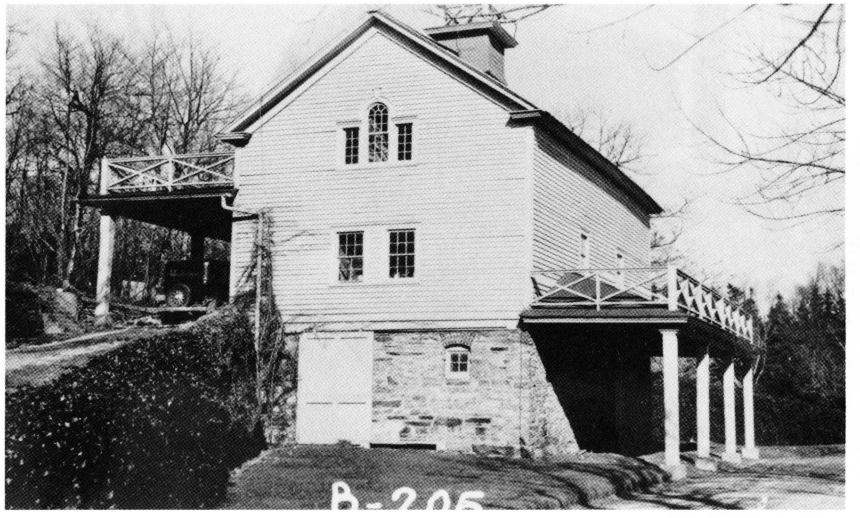
Photograph 50
Outbuildings near the Sudderth House
Date unknown
BRP negative #B193

Other Estate Buildings--There was a cluster of estate buildings to the northeast of the Manor House between Flat Top Orchard and Flat Top Pasture near the junction of several carriage roads. The 1909 map of the estate shows five buildings in this area: the Carriage House, the blacksmith's shop and his home, Superintendent Underdown's house, and an unnamed structure which may have been a cottage where the Cones stayed while the Manor House was being built (Buxton 1987 Appendix L). After 1909 several other buildings were added including the Dairy, the Woodbarn, and various storage sheds. All of these were out of sight of the Manor House but conveniently placed for access to all parts of the estate.

The Carriage House was a handsome building with its ramps and porches, venetian window, and cupola, see photograph 51. It was a more elaborate building than any of the other barns, being more closely associated with the Manor House. The Dairy was built next to the Carriage House circa 1913. There are some receipts for dairy barn equipment from that year in the Cone documents (Cone docs. item 128). The dairy barn and milk house were separated by a fenced yard. The milk house consisted of two rooms--in one a cooler, separator, and machine bottler were kept, and in the other, a steam sterilizer (Coffey, no date).

Other barns and sheds were distributed throughout the orchards and pastures of the estate. They were used for storing produce and equipment, and for housing livestock particularly in the winter. Of these, the apple barns were the largest and most interesting structures. The three barns in China Orchard were single story structures; the smallest measured forty by twenty-seven feet and the largest sixty by thirty feet. The main barn at Saw Mill Place is a two story structure measuring eighty by twenty-eight feet, not counting the ell-addition, see photograph 52. The barns in China Orchard were kept cool by large barrels of spring water and an insulation of wood shavings (Beeler et al. 1980). The Saw Mill Place barn has a ventilation system with three air ducts running up the center of the building. It also had a hand operated elevator to bring apples from storage bins in the basement to the packing room on the main floor.

One of the most important buildings on the estate was the School House at Sandy Flat, see photograph 53. This was constructed in 1908 (Buxton 1987). It had two rooms and could accommodate up to fifty or sixty students, the children of employees plus some "outsiders" (Isenhour 5/29/75). The building manifested the Cones' concern for the welfare of their employees and the rural community in general. They financed its construction and supplemented the salary of the teachers to lengthen the school year. After school consolidation in 1928, Bertha Cone gave permission for the building to be converted to a Baptist church, with the provision that it would revert to the estate when and if the congregation disbanded (Buxton 1987).



Photograph 51
Carriage House
Date unknown
BRP negative #B205



Photograph 52
Saw Mill Place--Apple Barn
Date unknown
BRP negative #B208B



Photograph 53
Sandy Flat Baptist Church--formerly the School House
Date unknown
BRP negative #B298

The Cone Cemetery--Moses Cone was buried halfway between the Manor House and the summit of Flat Top Mountain on the edge of the meadow. Lines of Fraser fir were planted around the site, giving to the place a certain formality. The grave was enclosed by a bronze fence, and a large block of granite was erected as a monument, see photograph 54. Bertha Cone often came to visit the grave, and Carl Hollers remembered having to mow the area and rake the paths every Thursday or Friday (Hollers 10/2/75). Bertha spent the rest of her life as a widow and nearly always dressed in black (Cone in Crandell 77, p. 17). In 1948 her ashes were buried in Flat Top Cemetery. Those of her two sisters, Clementine and Sophie Lindau, who lived with her at the Manor House, were also buried within the family plot.



Photograph 54
Cone Cemetery
Date September 1948
BRP negative #7563 (935DE)

CHAPTER THREE

CHANGES OVER TIME

Changes During the Historic Period

In a tribute to Moses Cone, the editor of the *Charlotte Observer* regretted that Cone did not live to complete the development of his estate (Charlotte Observer 12/19/1908). It may be that had Cone lived longer there would have been some changes in land use as well as further growth. But his early death and the determination of Bertha Cone to maintain the estate as a memorial to him effectively arrested development.

Once a year Bertha Cone would summon her employees to the Carriage House and explain to them what needed to be done to carry out her husband's wishes (Downs 11/21/75). The carriage roads were scrupulously maintained, the planting program was continued, and the orchards and stock farm operated along the lines that he had established. Earle S. Draper, Landscape Architect, of Charlotte, North Carolina, gave some advice to Bertha Cone in the 1920s, but the exact nature of that advice is not known (Aguar 1/25/1989).

There were some losses and a gradual deterioration over the years. Trout Lake was not restored after the dam broke in 1916, and the deer parks were abandoned in the 1920s. In the Depression there was a reduction in the number of hours each hand worked (Downs 11/21/75), and this must have affected the standard of maintenance. By 1940 there were large gaps in China Orchard, and some of the smaller mountain pastures had been abandoned. During the Second World War, a lack of labor made Bertha Cone decide to close the dairy and sell her cows (Crandell 1977, p. 10).

Towards the end of her life, Bertha Cone was also worried by proposals to bring the Blue Ridge Parkway through the estate. With increasing frailty, she was unable to supervise the management of her estate effectively (Pease 8/7/75). Nevertheless the estate in 1947 retained most of the features introduced by Moses Cone. But it belonged to a vanishing world--a world of cheap labor, when any steady work was good work in rural Appalachia. And changes were inevitable in the post-war era.

Acquisition by the National Park Service

In July 1947, shortly after the death of Bertha Cone, the estate was inspected by Stanley Abbott, the Resident Landscape Architect of the Blue Ridge Parkway, see appendix 2. Abbott noted that the estate had changed little since the horse and carriage days and admired its areas of natural beauty and its well kept meadows, pastures, and orchards. However, Abbott was primarily concerned with the estate's recreational possibilities and not its historical significance. Abbott recommended that the estate be incorporated as a recreational area within the Parkway. Those features which could be related to its recreational function should be maintained, but other features should be eliminated (Abbott 7/29/1947). Under the terms of the indenture transferring the estate to the United States in 1949, it was to be developed as a public park and pleasure ground in accordance with an agreed master plan over the next two years, see map 18.

The Parkway was built on an alignment which bisected the estate but did not interfere with the view from the Manor House to Bass Lake. A loop road provided access from the Parkway to the Manor House, which became a Craft Center operated by the Southern Highlands Handicraft Guild. Access was provided to Trout Lake, and the dam was rebuilt. The disruption of the carriage road system caused by the Parkway was mitigated by building new roads to link severed sections and by providing an underpass below the Parkway near the Carriage House, see map 2.

The operation of the orchard and stock farm was discontinued. China and Saw Mill Place Orchards were abandoned, and Flat Top Orchard was fenced and converted to a pasture. Some of the old pastures were abandoned, and the others were made available to local people to use as summer grazing for their beef cattle or horses. The estate workers were obliged to move from their homes, which together with nearly all the farm and orchard buildings were sold and dismantled. One of the employees was allowed to remove most of the estate tools and equipment (Pease 8/5/1980). Both of the Manor House gardens were abandoned. The garden to the west of the House was thought at one time to be a good location for a parking lot, but this proposal was abandoned in favor of the present site immediately behind the Manor House. Two other projects were also abandoned. The parking lot at Trout Lake was built to provide access to a public swimming area, but this was not developed; instead active recreation facilities were provided in the neighboring Julian Price Memorial Park. At Bass Lake there was a proposal to build a road from U.S. 221 to a new parking lot on the west side of the lake, but this project was not funded.

Most of the changes took effect when the Moses H. Cone Memorial Park was opened in March 1951. Quite naturally many of the changes were regretted by those who remembered the estate in its heyday (Hollers 10/2/75 and Walters 6/5/75).

Changes Since 1951

Carriage Roads--Twenty miles of carriage road built by Moses Cone are still open for public use, but their condition has deteriorated, see photograph 55. The road bed has eroded severely in many areas. In places rocks stick up over fifteen inches above the present surface. The cambered cross section has gone, and water drains down the middle of some roads. Gutters are blocked by leaves and earth, and culverts have become exposed and damaged. Repairs have been concentrated on a few sections--the Entrance Road, the Bass Lake loop, and the Flat Top Road as far as the Cone Cemetery. Periodic grading by machine has lowered road surfaces, and this has meant new channels are required to drain outside edges. The surface of the maintained roads has been dressed with crushed stone, but much of the fine material has been washed into drainage channels. The macadam section of the Entrance Road has been resurfaced with asphalt to carry automobile traffic to the Manor House, but with this exception, the carriage roads have not been opened to any automobiles, other than NPS vehicles.

The retaining walls have generally survived in good condition. In a few places sections have slumped forward. This may be due to disturbances associated with maintenance work such as culvert replacement, to earth movement behind the walls, or sometimes to pressure from the roots of trees or shrubs. Small sections have been rebuilt, but unfortunately the workmanship does not match the original.

Some other structures have been modified or replaced. Several bridges around the lakes have been partially rebuilt.

The stone bridge over U.S. Route 221 was removed when that road was widened and realigned in the 1960s, and May View Road now runs below Route 221 in an underpass. On the summit of Flat Top Mountain, the chestnut tower was replaced by a steel fire tower in the early 1950s (Pease 8/5/80).

Many of the trees and shrubs planted in the historic period are now eighty to ninety years old. It is difficult to assess the changes among the naturalistic plantings; there probably has been some regeneration but with losses, particularly among the less shade tolerant species. Many of the trees planted in avenues have survived, but they are in poor condition. The losses began in the historic period, particularly among the sugar maples. It has been reported that some of these came from New Hampshire (Buxton 1987, p.3), and this may account for their poor performance. Many of the tulip poplars are stag headed with many dead branches, but the main losses have been among the Fraser firs because of the balsam wooly aphid (Pease 8/5/80).



Photograph 55
Rich Mountain Road--an eroded area
Date July 1989, Photographer Westmacott

In contrast the rhododendrons and mountain laurels have flourished and spread. Some have been cut back, where they have overgrown roads and retaining walls. Normally they will regenerate from the base, but this is not occurring in areas of deep shade, particularly within the pine plantations. In some areas a root fungus is causing considerable dieback, and if this spreads, it could cause widespread losses. Lastly, around Bass Lake the ornamental hydrangea beds have not been maintained and are now overgrown with young pines. But as the hydrangeas are shade tolerant, a high percentage have survived, see photograph 56.



Photograph 56
Hydrangea bed near Bass Lake
Date July 1989, Photographer Firth

The sequence of views which characterized each carriage road in the historic period has been altered by the many changes which have affected the rest of the estate. Some changes have been dramatic. The abandonment of orchards and pastures has led to the obliteration of some views (see photograph 57), and the recent draining of the lakes has removed, at least temporarily, those features. Other changes are more subtle. The natural variety of forest scenery remains, but the stretches beside the roads are no longer kept tidy by the removal of firewood. But it is not only changes within the estate which have altered characteristic views. Urban development around Blowing Rock now intrudes upon the view from the Esplanade, Flat Top Mountain, and the Wadkins Roads.



Photograph 57
Rich Mountain Road--trees obscuring view to Grandfather Mountain
Date January 1990, Photographer Firth

Orchards--A survey was made of the three orchards in the park to determine the number of apple trees still living and their condition, see photograph 58. A total of 649 trees were found, but this number includes some seedling trees. The distribution of surviving trees is shown in maps 19 and 20.

Flat Top Orchard has the largest number of living apple trees. This may be attributed to its use as a pasture which has held back vegetation succession in some areas. However, half of the orchard has become overgrown because of the low number of cattle which graze within the eighty acres, see photograph 59. The areas which have remained clear are generally the more gentle slopes in the upper and lower portions of the orchard. One area, the southeastern corner of the orchard, was cleared about fifteen years ago (Redmon 9/8/89), but unfortunately any surviving apple trees were removed with the invading pines. The largest group of old apple trees is on the western margin of the orchard in the area of better soils beside the Duncan Road, see photograph 60. Over sixty apple trees stand in five or six rows. Many of the surviving trees are producing Ben Davis apples, which were originally intended as fillers. The condition of the trees varies; some are healthy though neglected, while others have conspicuous insect and disease damage.

China Orchard has an almost complete cover of hardwood trees, beneath which a herbaceous layer rich in wildflowers has developed. In May there are carpets of trilliums (*Trillium grandiflorum*, *T. undulatum*, and *T. erectum*) and patches of irises (*Iris cristata*, showy orchis, *Orchis spetabilis*), columbine (*Aquilegia canadensis*), and others. The area seems to be rich in wildlife, and there are many deer tracks. Most of the surviving apple trees are in the upper sections near U.S. 221, where there are still gaps in the canopy. In the lower areas there are almost none. The orchard roads and the foundations of the apple barns can still be found beneath the undergrowth, but the tramway was sold and removed after the death of Bertha Cone (Buxton 1987, p.24).

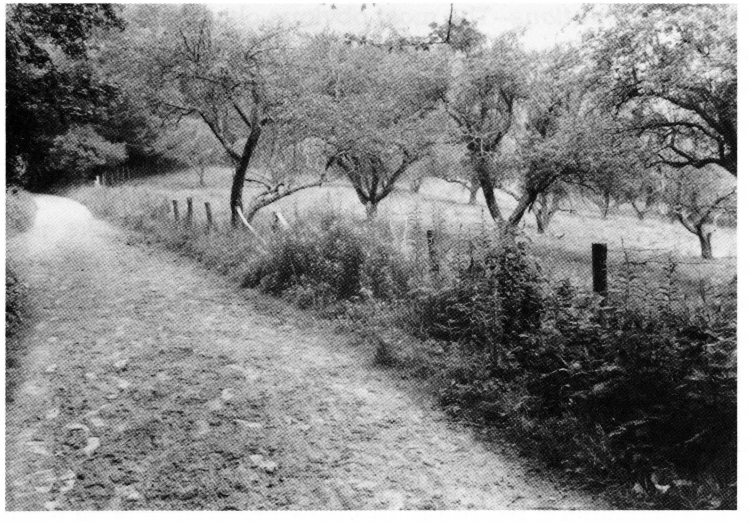


Photograph 58
Survey of apple trees in China Orchard
Date July 1989, Photographer Westmacott

At Saw Mill Place, there are far more apple trees surviving at the southern than the northern end of the orchard. This is somewhat surprising given the dense shade cast by the invading white pines at the southern end. Some of the apple trees are located beside the orchard road, the Black Bottom Road, which is kept open by the NPS. Others have only a branch or two which has not been overshadowed. Pinestraw blankets the floor of this area, and it has an impoverished herbaceous layer. The northern end has a cover of hardwood trees and a richer ground flora, but very few apple trees. This may be due to the stony soils. No other type of fruit tree was found in the orchards apart from a few seedling pears.



Photograph 59
Flat Top Orchard--invaded by forest trees
Date January 1990, Photographer Firth



Photograph 60
Flat Top Orchard--apple trees beside Duncan Road
Date July 1989, Photographer Westmacott

Pastures and Meadows--More than half of the 1940 acreage of pastures and meadows has been abandoned, see map 2. Today only 228 of those acres are still being used; this figure does not include the eighty acres of Flat Top Orchard which are now used as pasture. The abandoned fields have reverted to forest. Only the absence of old trees and the remains of post and wire fences indicate their previous use.

The main pastures on the estate today are those on Rich Mountain and Flat Top Pasture behind the Manor House. These are used by local farmers as summer grazing for beef cattle. In addition there are a couple of small pastures beside Route 221--Bridge Meadow and the Horse Show Field--which are used primarily for pasturing horses. The agreements between the NPS and the users of the pastures specify the maximum number of animal units which may be grazed in the fields and the period during which the fields may be used--usually May 1 to October 31. Conditions are attached concerning access and fencing, and the maintenance of soil fertility (NPS Special Use Permits B.R.P.).



Photograph 61
Rich Mountain Pasture--invaded by forest trees
Date January 1990, Photographer Firth

Although these fields continue to be used as pastures, their appearance has changed since the historic period. Beef cattle have replaced sheep and dairy cattle, and the various sheds and barns used for overwintering stock in the past have gone. The only structures in the fields today are some cattle pens. The most important change is the advance of woody species into the fields. This probably is most serious on Rich Mountain, see photograph 61. The thin stony soils restrict the productivity of the grassland, and the steep slopes make it difficult to spread fertilizer or lime, or to mow the weeds and briars. The stocking density is therefore kept low; the present agreement specifies a maximum of thirty animal units on the 118 acres of pasture around the summit of Rich Mountain (NPS Special Use Permit no. 5140.1609, 1986). Nevertheless some soil erosion is occurring

on the slopes. This is exacerbated by horse riders who leave the carriage road and take short cuts, see photograph 62. About one third of the area which was open in 1940 near the summit of Rich Mountain now has a tree cover.

In contrast the meadows have changed very little since the historic period. Flat Top Meadow is still managed for hay, and the fields at the eastern end of Wadkins Road also are used primarily as hayfields. There is some invasion of trees and shrubs around the edge of Flat Top Meadow where the slopes become steeper. Otherwise the fields look much the way that they did before the Second World War, except at haytime.



Photograph 62
Rich Mountain--eroded shortcut near summit
Date July 1989, Photographer Firth

Forests and Plantations--The most obvious change has been the expansion of the forests; about 90 percent of the park now has a cover of trees, see map 2. Within the historic stands of native hardwoods, there has been no dramatic change, but there have been shifts in age structure and composition. As the stands age, more of the trees, particularly in the coves, have achieved large sizes. Some of the hemlocks beside Trout Lake now exceed forty-two inches diameter at breast height. No planting or cutting has occurred in the past forty years, so there is probably less regeneration. The dead trees now remain where they fall and provide valuable habitats for fungi, insects, and birds. The composition of the forest changed markedly during the historic period with the arrival of the chestnut blight in the 1920s. Today there are probably other changes occurring as a result of atmospheric pollution, but no studies have been made to assess the impact within the estate.

The deer parks have been abandoned for sixty years. As they were only in operation for a relatively short time, these areas are now indistinguishable from the surrounding forests, except for the remains of fence lines. The open area on the ridge of Rich Mountain was used as sheep pasture after the deer were removed, and today it is part of the area leased for pasturing beef cattle.

All the coniferous plantations are now over sixty years old, and some are approaching ninety years in age. Although there has been some mortality among the white pines, this species will live as long as four hundred years under favorable conditions, so these stands cannot be classified as old. The conditions within the stands reflect variations in the original planting density and early management. In some of the older stands to the north and west of the lake, the trees have developed deep crowns, and the understory hardwoods are still saplings, see photograph 63. The gaps between the pines in these stands were probably mowed during the historic period. Along the Stringfellow Road, however, the pines do not have

persistent whorls of branches near the ground, although the trees are widely spaced, and the understory hardwoods are more substantial. This suggests these areas were not mowed, and the understory developed in the historic period (White 8/22/89). In the younger stands south of the lake, the pines are more closely spaced and have an understory of rhododendron. There is very little white pine regeneration in any of these plantations, but there are dense stands of young pines in the abandoned orchards nearby.

Conditions in the blocks of Norway spruce and hemlock are similar to those in the adjacent pine stands. The trees are widely spaced, and the ground was probably kept clear of any hardwoods during the historic period. There is some regeneration within the hemlocks, but none among the spruces because of the dense shade.

The most noticeable change in the plantations has been the loss of the Fraser firs due to the predations of the balsam wooly aphid in the 1960s. The firs were largely replaced by white pines, but young firs now form dense stands near the Entrance Road where there is more light. However, they will not be able to out-compete the pines.



Photograph 63
White Pine plantation beside Duncan Road
Date August 1989, Photographer Westmacott

Lakes and Ponds--After the dam was rebuilt, Trout Lake was stocked with trout. It was managed by the NPS on a put-and-take basis and became a popular place for fishing (Redmon 9/8/89). It is not known whether Bass Lake was restocked by the NPS, but Golden Shiners have been added periodically as forage fish.

Both lakes were drained in 1987, because the earth dams did not meet new federal safety standards. The reconstruction of both dams began in the winter of 1990. A new access road from U.S. 221 is being provided for construction traffic. This road is being constructed along the line surveyed in 1953 for the proposed parking lot on the west side of the lake. The Blue Ridge Parkway staff now plan to build a parking lot in that location, when the work on the dam has been completed, see map 18.

The character of the edge of Bass Lake has changed considerably since the historic period. Trees have grown up along the margins particularly at the northwestern end, so that the lake is not always visible from the encircling carriage road.

The ponds have suffered from neglect during the past forty years. The Upper Pond in the abandoned orchard is now about half its original size and is hemmed in by young white pines. The heart-shaped pools are empty and are partly overgrown. One of the central walls has broken. The other has been repaired by the Youth Conservation Corps, see photograph 64. The pool on the Rich Mountain Road has also been damaged, and the cascade is now hidden by logs placed in front of it to prevent people or horses from stepping into it.



Photograph 64
Heart shaped pools northwest of Bass Lake
Date January 1990, Photographer Firth

Buildings and Gardens--The change of use to a Craft Center has involved no structural changes to the Manor House. Exhibit and sales areas occupy the ground floor, and the upper floors remain empty. The setting has been changed, however, by the new access route from the Parkway. The laundry and servants' quarters are gone, and visitors now arrive at the back of the house, see map 3. The house is only approached via the Entrance Road by those who walk or ride around the estate. The Esplanade in front of the house has also been changed. The balustrade was moved towards the house to allow the slope beyond to be regraded so that it could be mowed more easily (Pease 8/5/80).

The gardens associated with the Manor House have been abandoned and are now partly overgrown, see photograph 65. Some roses and raspberries remain in the terraced garden below the Carriage House, and a few peonies survive in the other garden. The areas levelled for the tennis court and croquet lawn can still be recognized, but they have been invaded by trees. The bowling alley was demolished by the NPS at the same time that the other estate buildings were removed (Pease 8/7/75). However, the Figure 8 walk has been maintained, and a series of signs beside the path provides some information on the history of the estate.

The Carriage House still holds two of Bertha Cone's surreys which appear to be in good condition. The stables were used in the 1970s as a base for operating a carriage ride concession, but this activity was discontinued after a few years (Redmon 9/8/89).

The main Apple Barn beside the abandoned Saw Mill Place Orchard has been maintained by the NPS as a storage shed, and the interior retains the original ventilation system and elevator. Little remains of the other farm and orchard buildings, however, apart from a few stone foundations. The sites of some of the employees' homes dismantled by the NPS can also be detected by the remains of foundations amidst second growth woodland. Abandoned gardens are sometimes indicated by persistent garden plants--day lilies (*Hemerocallis* sp.) were noted at a number of sites in China Orchard.

The Cone Cemetery has been maintained by the NPS in accordance with the requirements of the 1949 indenture. However after the Fraser firs were killed in the 1960s, the area was replanted mainly with Norway spruces. Some of the firs have now regenerated, and the planting has lost its formal lines and appears to belong more to the adjacent forest.



Photograph 65
Terraced garden below Carriage House--the upper terrace and manure shed
Date January 1990, Photographer Firth

Evaluation of the Integrity of the Landscape

In order for the landscape of the Moses H. Cone Memorial Park to have historical significance, it must retain a certain measure of integrity. This is evaluated by a comparison of its present condition with its condition during the historic period. The National Register of Historic Places has established seven criteria for evaluating integrity, and while these criteria apply primarily to historic structures, they can be extended to apply to the biotic communities in a historic landscape (Firth 1985, p.10).

Location--The boundaries of the estate have been preserved, but the geography of the place was changed when the Blue Ridge Parkway was constructed across it. It is no longer a relatively isolated mountain retreat but a public park astride one of the most important recreational highways in the United States. Many thousands of visitors arrive via the Parkway, and it is therefore unfortunate that these people do not approach the Manor House at the center of the estate along the routes carefully designed by Moses Cone to show it off to advantage.

Design--Most of the components of the original design survive, but changes in use and management have altered their character. The Manor House remains at the center of a system of carriage roads, but the house is now a Craft Center, and the roads no longer wind through an operating agricultural estate. The termination of the orchard and stock farm enterprises has resulted in changes to the sequence of views along each road. The orchards and half of the pastures are overgrown. The forest has advanced on all sides, and the drainage of the lakes has temporarily removed these important focal points from the scenery. All "surplus" buildings have been removed, including employee housing, and the gardens and ornamental shrubberies are being allowed to revert to nature.

Setting--The natural setting of the mountains with their cool summer climate remains a prime attraction of the area. But this has led to the expansion of the city of Blowing Rock, so that urban developments now intrude on views from the estate. Equally intrusive is the noise of automobile traffic which reverberates from the Parkway and U.S. Route 221.

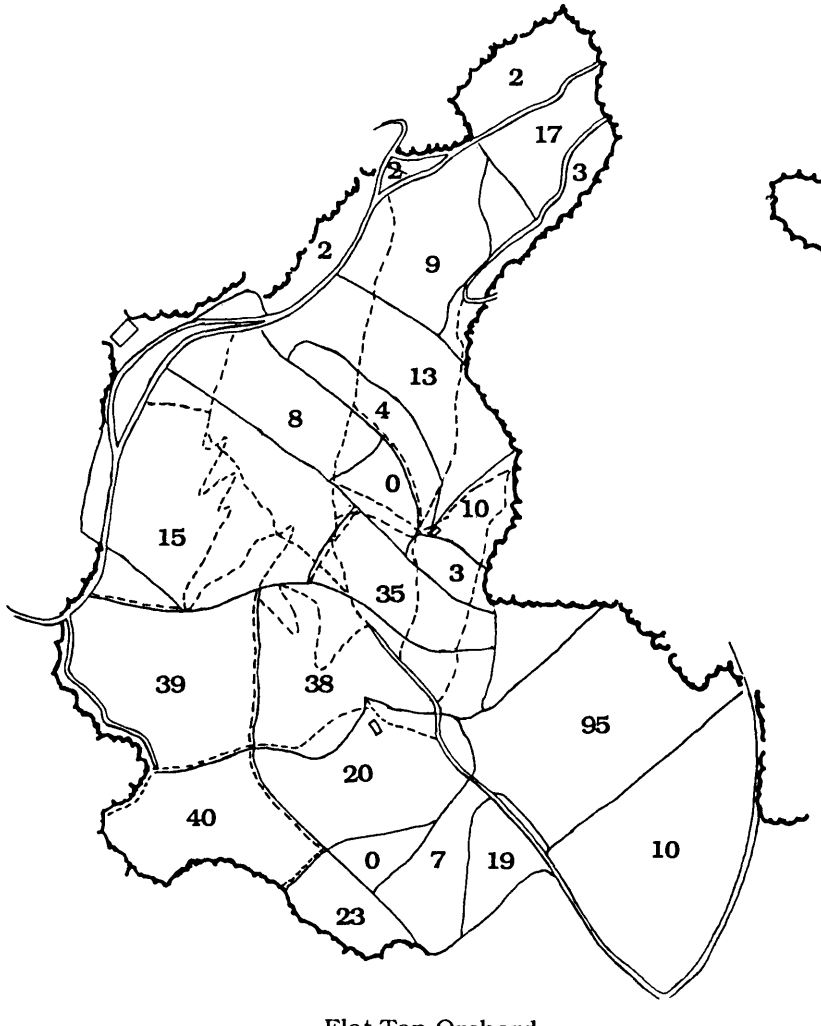
Materials--The composition of the vegetation communities is changing as the trees and shrubs planted in the historic period are lost. Alongside the roads gaps are opening up in the avenues. Within the orchards, less than 10 percent of the apple trees planted as permanents survive. The threat to the conifer plantations is less immediate, but in the long term, the hardwoods in the understory stand ready to replace fallen pines. As a partial compensation, the process of succession in abandoned orchards and fields has been accompanied by an increase in floristic diversity, at least in the short term.

Workmanship--Evidence of the high quality of workmanship involved in the construction of the estate survives in structures, such as the retaining walls beside the carriage roads. But the roads which use to be continuously maintained are now deeply eroded and infrequently repaired. The labor intensive maintenance techniques characteristic of the historic period have not been continued by the NPS. Instead most management decisions have been guided by the need to reduce labor inputs. The results are particularly marked in the altered vegetation communities. Those apple trees which survive in the abandoned orchards are suffering from neglect. While some leased pastures and meadows appear to be in good condition, others are reverting to scrublands. The painstaking maintenance in the gardens and the ornamental shrubberies during the Cone era has been replaced by the natural processes of growth and succession.

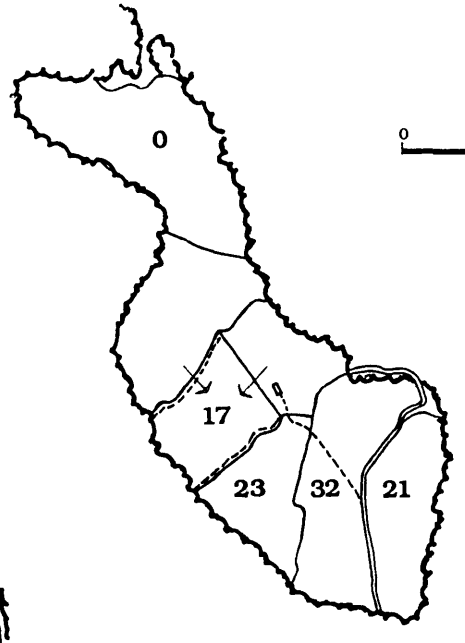
Feeling--The sights, sounds, and smells associated with an active agricultural estate have been replaced by those of a tourist resort. But the beauty of the mountains and forests embellished by Moses Cone remains. Rhododendrons and mountain laurels provide spectacular displays in the early summer, and sugar maples and tulip poplars illuminate the fall. Throughout the summer, the forests provide a cool retreat for walkers and horseback riders.

Association--The connection with the past is perpetuated in the name of the park, but in the past forty years, the estate has been losing features associated with Moses Cone. The effect on the landscape of the termination of the orchard and stock farm enterprises has been realized only gradually. If compared to 1940 aerial photographs, 1964 photographs show relatively few changes in the center of the estate, but the cumulative effects of the change in use are apparent in the 1979 aerial photographs. Many of the changes, however, are not irrevocable, and steps can still be taken to retain some of the most important features of the historic landscape.

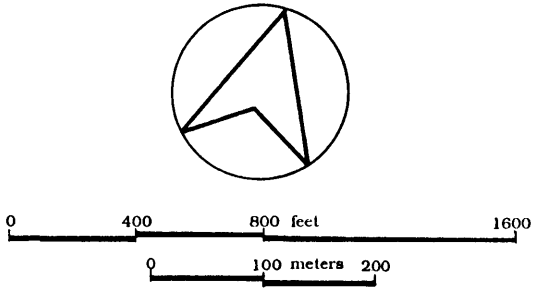
Map 19



Flat Top Orchard
total 414 surviving apple trees



Saw Mill Place
total 93 surviving apple trees



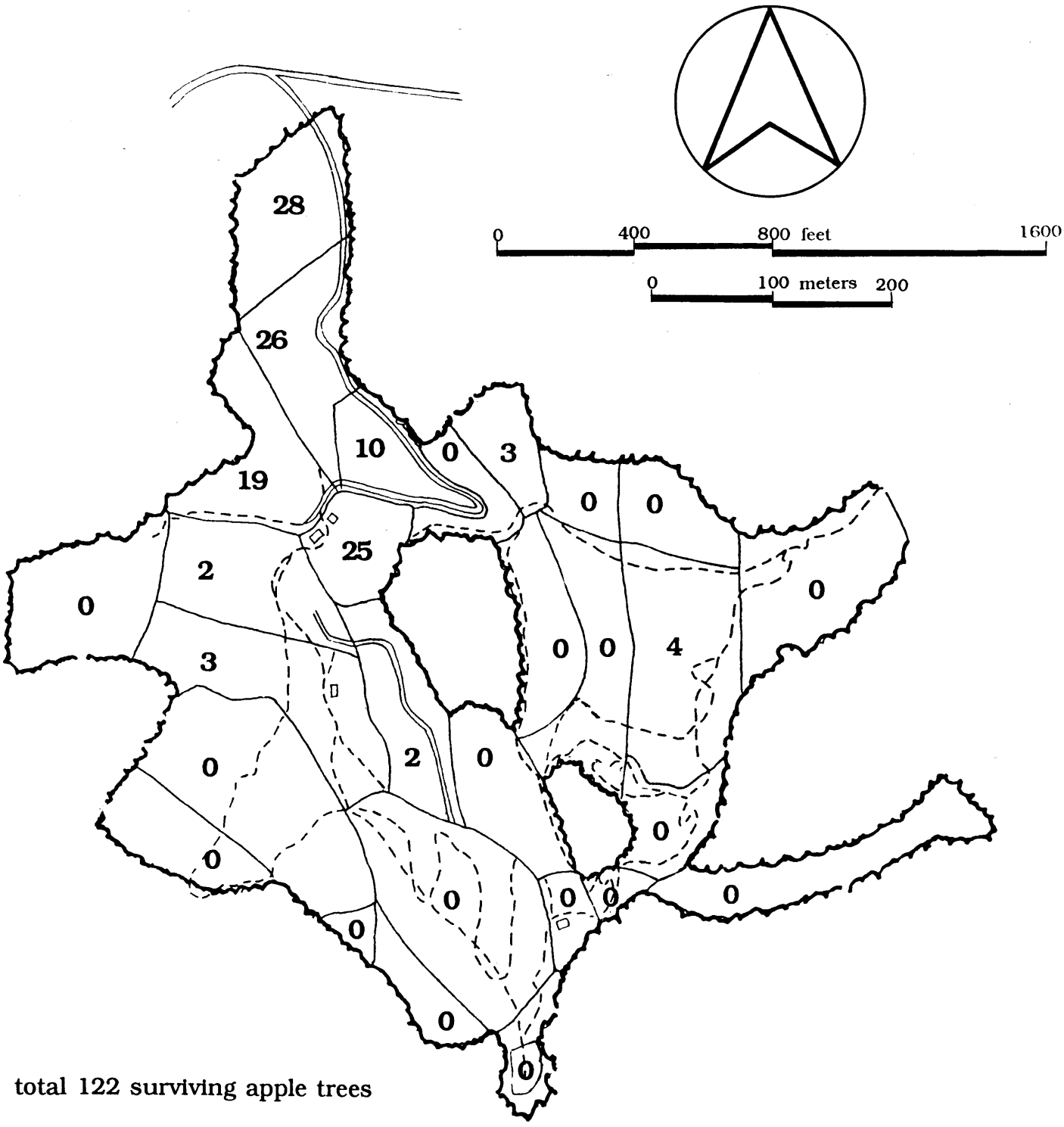
Moses H. Cone Memorial Park

Map 19

Flat Top & Saw Mill Place Orchards: distribution of surviving apple trees

drawn by: JM checked by: IJWF
date: 9/30/89

Source: field investigations October 1988 & May 1989



total 122 surviving apple trees

Moses H. Cone Memorial Park

Map 20

China Orchard: distribution of surviving apple trees

Source: field investigations May 1989

drawn by: JM checked by: IJWF
date: 9/30/89

CHAPTER FOUR

HISTORICAL SIGNIFICANCE

Definition of Significance

As defined by the National Historic Preservation Act of 1966 and the National Register of Historic Places criteria, to be eligible for the National Register a designed historic landscape must possess the quality of significance in American history, architecture (interpreted in the broadest sense to include landscape architecture and planning), archeology, engineering, and culture, and integrity of location, design, setting, materials, workmanship, feeling, and association and

> a. be associated with events that have made a significant contribution to the broad patterns of our history; or
>
> b. be associated with the lives of persons significant in our past; or
>
> c. embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> d. have yielded, or may be likely to yield, information important in prehistory or history.
>
> (Keller and Keller 1987, p. 6)

The Moses H. Cone Memorial Park is a designed historic landscape which meets criterion C, because it embodies the distinctive characteristics of a Country Place Era estate, and it possesses high artistic values. It is also significant for its association with the life of Moses Cone, who made an important contribution to the development of the textile industry in the South. The apple orchards in the park are associated with an early phase in the development of commercial orchards and are likely to contain important genetic resources, namely rare apple cultivars. Thus the park also meets criteria a, b, and d above.

A Country Place Era Estate

Context--The American Country Place Era has been defined as beginning in the 1880s, with post Civil War industrial growth, and finishing at the close of the 1920s, with the economic crisis and changes in taxation (Newton 1971, pp. 345-352). Country places provided a respite from the pressures of the city, to which one could return physically rejuvenated and morally uplifted. This was an idea deeply embedded in western culture from the time of Virgil, and the design of a typical American country place made clear references to its European antecedents.

In architecture the turn of the century saw late Victorian eclecticism increasingly influenced by the Ecole des Beaux-Arts. The country homes of the nouveau riches were built to impress and to accommodate guests during the season. They required a number of servants to operate, but at the same time they incorporated the latest in domestic technology to ensure the comfort of the owners and their guests (Ferree 1906, Le Moyne 1921). In landscape design there were parallel developments with a prevailing eclecticism based on European precedents. There was a fashion for Italian gardens led by the architect Charles Platt, but the picturesque park landscapes advocated by Andrew Jackson Downing and created by Frederick Law Olmsted continued in favor (Newton 1971, p. 344). Country estates often combined manicured gardens with idealized rural scenes. In the latter there was an attempt to reconcile the idea of the "ferme ornee" with the new technology of scientific agriculture.

Someone purchasing a country place was expected to adopt the style and habits of a gentleman. Ferree expresses this ideal in his discussion of *The Orchard in Southampton, New York*, by McKim, Meade, and White:

> If it recalls one model more than another, it is perhaps the historic lines of Mount Vernon which it suggests. But it is a suggestion only, and the house has been planned and carried out without thought of copying, and with the single idea of making a hospitable place where one might live comfortably in the country, entertain one's friends, and engage in such rural sports and undertakings as a man of wealth and culture might naturally be interested in.
>
> (Ferree 1906, p. 173)

Rural sports usually required stables and a gun room. Rural undertakings might involve laying out the grounds or any branch of agriculture. The design of the estate would establish the gentleman's reputation as a man of refined tastes, while the management of the land would allow him to set an example of progressive thinking and business acumen to the rural community. At the same time his wealth enabled him to set aside from agriculture a portion of his estate, and thereby to subscribe to the ideals of the new conservation movement.

Flat Top Manor as a Country Place Era Estate--The Cones lived at Flat Top Manor during the summer, returning each fall to their home in New York or Baltimore. During the summer season they entertained influential guests including the governor of North Carolina and the president of the Southern Railroad Company (Crandell 1977, p. 9). Their estate of 3500 acres was large, but not extraordinarily so. It was not nearly as vast as the Vanderbilt estate of 125,000 acres at Biltmore, or the Carnegie property, which included 90 percent of Cumberland Island on the coast of Georgia, but it was considerably larger than most country places nearer New York and Baltimore. The location in the mountains had been chosen for "the salubrious and invigorating effect of the climate" (Indenture 5/30/1911). This climate and the mountain scenery had led to the development of Blowing Rock as a summer resort in the 1880s (N.C. State Board of Agriculture 1893, p. 200, and Arthur 1914, p. 500).

The Manor House would have been unremarkable in a different setting, but its construction was an extraordinary undertaking in the mountains. Most of the materials had to be hauled in carts from the rail head at Lenoir (Cone docs. item 7). Good use was made of new technology to provide a high level of comfort. Acetylene gas was considered a good alternative to electric lighting at that time (Franklin 1981, p. 107), and the telephone system was a source of wonder to the mountain people (Downs 11/21/75 and Walters 6/5/75). Towards the end of her life Bertha Cone wrote, ". . . a fortune has been spent

to make a charming place of what was wild mountain country . . . " (Letter to A. E. Demaray 7/28/39 in Buxton, 1987, Appendix J).

Flat Top Manor did not have any ornamental gardens except on the south side of Bass Lake, but the entire estate was treated as a picturesque park. Nearly all the other components which one might expect to find on a country estate were present. The Cones enjoyed the produce of their own orchards and gardens, pastures and meadows, and forests and lakes. Each country place became noted for some particular feature. At Flat Top Manor there were two features on which Moses Cone spent lavishly--the carriage roads and the orchards. His enthusiasm for laying out roads was shared by others, but the length of his system, the peculiar alignment of the roads, and the extensive planting alongside them distinguished his efforts. The apple orchards were his principal agricultural undertaking. In the early years the investment may have appeared sound, with his apples achieving national and international recognition. But it was an experimental project rather than a shrewd business investment.

> I've heard some of the old folks say: Mr. Cone said he might not have lots of apples, that he wanted to have pretty trees anyway. He wanted them pruned, sprayed, looked after, but they didn't do it for money.
>
> (Downs 11/21/75)

Agricultural production was probably of less importance to the Cones than nature conservation. Gifford Pinchot is reported to have been one of their friends. Most of the estate remained in forest, and while cutting was permitted, it was managed conservatively. The deer parks and a ban on shooting suggests that they primarily enjoyed observing wildlife.

According to the encomiums written after his early death, Moses Cone became the very model of a country gentleman. Certainly both he and his wife enjoyed their summer home; they took pride in its creation and maintenance, became knowledgeable in agricultural matters, and adopted a paternalistic attitude to the welfare of their employees.

The Artistic Achievement--A number of obstacles stand in the way of a full assessment of the artistic achievement of Moses Cone at Flat Top Manor. The absence of any record of the ideas underlying the design and the paucity of information on the design and construction process leaves important questions unanswered. Moses Cone is reputed to have laid out the estate himself, but he did have some professional advice, and we do not know what contribution his architect, engineer, and nurserymen made. Nor do we know what experiences or contacts influenced Moses Cone. His friendship with Gifford Pinchot has led to speculation that Pinchot advised the Cones on the planting of the white pines (Crandell 1977, p. 6). But this seems doubtful, as the pines were not planted according to the tenets of good forestry. However, the Cones apparently did share Pinchot's enthusiasm for conservation. The philosophy behind the development of the estate seems to have been a combination of a nineteenth century belief in improvement and a turn of the century realization of the need for conservation.

Moses Cone was described by his friend Josephus Daniels, Secretary of the Navy under President Wilson, as a man who read himself into a good education. Having received a very brief schooling, he educated himself by reading widely:

> Economics, history, literature, art, all intrigued him and by the time he saw the possibility of the Vision of Beauty he incarnated here and made it

> permanent in his noble estate, he had become an educated man at the age of 40.
> (Daniels 1930 in Buxton 1987, p. 16)

One might speculate that Cone's reading included some of the writings of von Puckler-Muskau, the German prince and amateur landscape gardener who designed the famous park at Muskau in Silesia (Newton 1971, pp. 233-241). Certainly Cone, knowingly or unknowingly, followed many of Puckler's maxims and shared his enthusiasm for the laying out of carriage roads.

The carriage road system at Flat Top Manor was the most remarkable element in the design of the landscape; the importance of which was recognized in the 1949 indenture which obligated the NPS to maintain that system or its equivalent. While the length of road is impressive, it is not without parallel. John D. Rockefeller, Jr., built some fifty-seven miles of macadam carriage roads on Mount Desert Island, Maine. Rockefeller planned and funded these roads between 1913 and 1940 and reportedly visited the Cone estate sometime after Cone's death (Rieley and Brouse 1989, p. 5). Rockefeller's roads have more elaborate construction details and associated structures.

What makes the Cone roads so remarkable is their alignment. While others were striving to achieve smooth curves with gradual transitions, Moses Cone seems to have taken a perverse delight in maximizing the number of sharp turns and switchbacks. While this would have been dangerous on public roads, on his private roads it enabled him not only to maintain a gentle gradient but to arrange a sequence of views across the estate. These views gave each road a unique character, and it is the alignment of the roads to take advantage of their setting which constitutes Moses Cone's finest artistic achievement.

The planting design alongside the roads is also notable, not only on account of the lavish scale of the planting but because of the use of native plants. At that time little distinction was made by most landscape architects, including Olmsted, between native plants and exotics which could be naturalized. Cone was more rigorous in following the teachings of nature.

While each of the carriage roads has its particular charm, the two mountain roads are the most spectacular. Their ascent through a series of picturesque forest and pastoral scenes to the sublime vistas of the mountain tops had been planned with great skill and a sensitivity to the potential of each site. These roads are very different from Olmsted's Approach Road at Biltmore, but they can be ranked with that work as the finest pieces of scenic road design of their period.

The acquisition of the estate by the NPS was fortuitous, for the Cone carriage road system can be seen as an antecedent of the Blue Ridge Parkway. Nineteenth century estate roads designed for pleasure driving were the forerunners of twentieth century recreational highways.

It is doubtful whether the example of the Cone roads had much direct influence on Stanley Abbott and his associates in the design of the Parkway. Abbott makes no reference to the Cone roads in his early reports on the Parkway. Instead the major influence was undoubtedly the Westchester Parkway System, New York, upon which Abbott had been employed before he was appointed as resident landscape architect for the Parkway (Jolley 1987, p. 6).

However, the similarities between the Cone roads and the Parkway are notable, and reflect a common debt to eighteenth and nineteenth century ideas on landscape aesthetics. Both the Cone carriage roads and the Parkway were carefully designed to lead travellers through sequences of natural and agricultural scenes, allowing them to enjoy both mountain panoramas and views of hayfields, orchards, and pastures.

Because of the change from horse drawn carriages to automobiles, the geometrics of the roads are very different. The hairpin bends in the Cone roads required carriages to slow to a virtual halt, whereas the Parkway alignment allows for

continuous movement. However, the Parkway's overlooks, which encourage motorists to stop to appreciate the more spectacular vistas, may be regarded as the equivalent of the bends on the Cone roads. The placement of these bends and overlooks required considerable foresight in planning and great skill in designing the roads. The location of the Cone estate astride the Parkway provides a unique opportunity for visitors to compare excellent road designs from the era of the horse and carriage and the era of the automobile.

Association with the Life of Moses Cone

Context--Moses Cone played a leading role in the development of the southern textile industry. In partnership with his brother Caesar, he reorganized the marketing of textiles from southern mills, introduced the manufacture of denim to the South, and established new mills in Greensboro, North Carolina. He became known in the region as the "Denim King."

Moses and Caesar Cone developed connections with cotton mills while representing the family wholesale grocery business, which was based in Baltimore. During the post-war period in the South, much trading of necessity involved barter, and the Cone brothers accepted textiles in exchange for the groceries and cigars, which they supplied to general stores and mill stores. The Cones would then sell the textiles in northeastern markets.

In 1890 the grocery business was liquidated, and a new company was established in New York to market textiles. The Cone Export and Commission Company brought order and stability to a chaotic market in plaids and ginghams by a series of marketing agreements with the Holt family's mills in North Carolina. These agreements were operated very profitably, until the Sherman Anti-Trust Law took effect (Andrews 1987, p. 68).

In 1892 the Cones persuaded W. A. Erwin to begin the manufacture of denim in Durham, North Carolina. Denim had been produced before that only in New England. The Cones developed a large market for denim in the South, and when Erwin terminated the agreement with them, they decided to build their own mill. They selected a site in Greensboro, where they had already established the Southern Finishing and Warehouse Company. The new Proximity Mill was established in 1895 with 250 looms. Seven years later the White Oak Mill was built, and in 1914 the two plants had 3,500 looms and constituted one of the largest centers of denim production in the world (Andrews 1987, p. 69). These mills became the center of a Cone textile empire which continues to produce and market textiles to this day, though the Cone mills are no longer under Cone family control (Buxton 1987, p. 11).

Moses Cone and the Cone family became known not only for their business acumen but for their philanthropy. In Greensboro they took a particular interest in the health and education of their employees, providing a welfare service and company schools (Crandell 1977, p. 5). In the mountains Moses Cone provided most of the funds for the establishment of Sandy Flats School (Buxton 1987, p. 29) and was a benefactor of the Appalachian Training School, now Appalachian State University.

Upon his death Bertha Cone, supported by some of his brothers and sisters, established a hospital corporation in his memory and provided that his Flat Top Manor estate should become a public park upon her death. The Moses H. Cone Memorial Hospital was built in Greensboro in 1951, and the Moses H. Cone Memorial Park was officially opened in the same year.

Flat Top Manor and the Life of Moses Cone--Flat Top Manor was not just Moses Cone's summer residence. It was very much his own creation and the consuming interest of his last years. The estate was not the source of his great wealth, but rather illustrates the ends to which he chose to put that wealth. The design of the estate was the work of this self-educated man. He

reportedly took an active role in its day-to-day management and showed a paternalistic concern for the welfare of his employees. That it was his crowning achievement is confirmed by the decision of his wife and family to dedicate it as a public park in his memory.

GENETIC RESOURCES

Context--

> "From our ancestors we inherit three sorts of things: material objects, genes, and ideas. Of these three the first is least important, for 'a fool and his money are soon parted.' The other two inheritances leave more lasting traces."
>
> (Garrett Hardin [Stone 1974, p. ix])

The importance of conserving genetic resources has been recognized in the NPS by the Biological Diversity Initiative. As part of this initiative the North Atlantic Regional Office, in cooperation with the University of Massachusetts, conducted a project to inventory historically significant fruit trees in National Parks (Coli and Mitchell 1988).

Apple trees are a very important part of America's horticultural heritage. The apple flourished here, and hundreds of new varieties were developed in the eighteenth and nineteenth centuries. But in the twentieth century, there has been a concentration on a few commercially successful varieties and the loss through neglect of many of the old ones. The 1890s were the turning point in the story.

Until the middle of the nineteenth century, there was only a small trade in apples because of the lack of transportation. Each farm had its own orchard, which was made up partly of seedling trees and partly of grafted nursery trees. Seedling trees produced "common apples" used for feeding to stock and cider making. The grafted trees were of many different varieties, because the object was to have fruit from the first of the season through autumn, winter, and spring.

> A hundred years ago, people had a broader appreciation of apples. They grew varieties that fruited early, midseason and late. They grew tart apples that dried without turning dark and sweet apples that made apple butter without losing aroma. They grew firm apples that held their shape in a pie and soft apples that cooked to pieces in apple sauce. People grew bruise resistant apples that kept through the winter, and they grew pretty apples to sell in local markets. This explains the differences in old varieties with their varying textures, flavors, colors and ripening periods.
>
> (Calhoun, no date, p. 1)

In 1845 Andrew Jackson Downing attempted to compile the first comprehensive list of apples in cultivation in America. *The Fruits and Fruit Trees of America* was revised in 1869 by his brother Charles. A total of 1,856 varieties were named on the two lists of which 1,099 were of American origin (Bailey 1892, p. 230).

The opening of canals and railroads stimulated the development of commerce in apples. But early commercial orchards suffered severe losses from codlin moth and other insects and also from apple scale and other fungous diseases (Beach 1905, p. 13). Insecticides such as "paris green" and other arsenical poisons were first used in New York State in the 1870s. Fungicidal sprays were introduced in the decade between 1885 and 1895 (Beach 1905, p. 14). Other developments in orchard management and apple storage followed, bringing a new stability and prosperity to the commercial growers. From the beginning these growers

concentrated on a few varieties. Beach estimated in 1903 that the Baldwin apple accounted for over 50 percent of the total commercial production in New York State (Beach 1905, p. 17). Many of the old varieties were no longer propagated, and the number of farm orchards declined as subsistence agriculture gave way to modern agribusiness. Today old apple varieties account for less than 0.5 percent of the apples grown in this country (Givens and Muller 1988).

Moses Cone's Orchards--The conservation of old apple varieties has to be organized on a regional basis as many of the old cultivars did not have a wide geographical distribution. The Moses Cone estate orchards have been described as a "Who's Who" of apple varieties adapted to the South (Calhoun 9/8/89). The orchards were established in the early stages of the development of commercial apple growing, and there were in effect two types of orchard on the estate. The commercial sections of the orchards grew sixteen cultivars selected for their marketability and adaptation to the area. The family orchards grew fifty-nine varieties of apples, some of them probably found only in that locality, but each valued for a particular quality. Many of these seventy-five varieties are no longer commercially available, and some may be considered as rarities.

Table 9 indicates how many sources are identified for each cultivar listed in the "North American and European Fruit and Tree Nut Germplasm Resources Inventory" (Fogle and Winters 1981). The table also indicates those varieties which are not in the Fisher collection at Harrisonburg, Virginia. Dr. Elwood Fisher of James Madison University maintains one of the largest private collections of fruit trees, shrubs, and vines in the nation, which includes over eleven hundred varieties of apple. Dr. Fisher has made a search for rare varieties in the Cone orchards. This search was conducted for this Cultural Landscape Report during the summer of 1989. Mulford's orchard maps were used as a guide to the probable location of particular cultivars. The investigation was concentrated in the family orchard area of Flat Top, but a brief inspection was made of all old orchard areas. The search has located a tree bearing apples of the Gragg variety in China Orchard. Further search may locate other rare varieties which are not in the locations indicated on Mulford's maps.

CONCLUSIONS

The Park was established as a memorial to Moses H. Cone. His importance in the industrial development of the South gives his estate additional regional significance.

The Moses H. Cone Memorial Park has many of the features that characterized a turn-of-the-century Country Place. It has, moreover, high artistic value as a landscape design. The layout of the carriage roads, which provide a sequence of views across the estate, places this design in the first rank among landscapes of the Country Place Era. The design was the work of a well-read and gifted amateur, but it has not been possible to determine which experts, if any, he consulted.

The orchards, which formed an important part of the improvements that he made to the estate, were planted with a wide variety of apples; some of which are now rare. These orchards are therefore important both to an understanding of the history of orchards and to the preservation of the germplasm of old southern apple varieties.

CHAPTER FIVE

MANAGEMENT STRATEGIES

PRESERVATION STRATEGIES

The *Secretary of the Interior's Standards for Historic Preservation Projects* define seven preservation strategies: acquisition, protection, stabilization, preservation, rehabilitation, restoration and reconstruction (Morton and Hume 1979). The definitions were framed with the preservation of buildings and archeological sites in mind, but they can be extended to apply to the preservation of biotic cultural resources, such as orchards, pastures, and meadows.

Acquisition--

> Is defined as the act or process of acquiring fee title or interest other than fee title of real property (including the acquisition of development rights or remainder interest).

Protection--

> Is defined as the act or process of applying measures designed to affect the physical condition of a property by defending or guarding it from deterioration, loss or attack, or to cover or shield the property from danger or injury.

In the case of buildings and structures, such treatment is generally of a temporary nature and anticipates future historic preservation treatment; in the case of archeological sites, the protective measure may be temporary or permanent (Morton and Hume 1979, p. 2).

In the case of biotic cultural resources, protection may involve measures to prevent damage by natural agents, such as plant diseases, or through mankind's misuse. Protection requires continuous vigilance as biotic cultural resources cannot be isolated from their environments.

Stabilization--

> Is defined as the act or process of applying measures designed to reestablish a weather resistant enclosure and the structural stability of an unsafe or deteriorated property while maintaining the essential form as it exists at present (ibid, p. 2).

In the case of biotic cultural resources, the term "stability" may be applied to the structure of a plant or animal population. Stabilization measures would control threats to a historic population, such as competition from an invasive population.

Preservation--

> Is defined as the act or process of applying measures to sustain the existing form, integrity, and material of a building, structure, and the

existing form and vegetative cover of a site. It may include stabilization work, where necessary, as well as on-going maintenance of the historic building materials (ibid, p. 2).

In the case of biotic cultural resources, preservation almost always requires some program of on-going maintenance. This maintenance should include steps to promote and control regeneration of the plant or animal populations.

Rehabilitation--

Is defined as the act or process of returning a property to a state of utility through repair or alteration which makes possible an efficient contemporary use while preserving those portions or features of the property which are significant to its historical, architectural, and cultural values (ibid, p. 2).

An example of rehabilitation applied to a biotic cultural resource would be agricultural improvements designed to bring an area back into economic production. Such improvements often focus on ameliorating soil and site conditions, and they may also involve changes in species composition.

Restoration--

Is defined as the act or process of accurately recovering the form and details of a property and its setting as it appeared at a particular period of time by means of the removal of later work or by the replacement of missing earlier work (ibid, p. 2).

Restoration of biotic cultural resources may involve the removal of invasive plant or animal populations and the return of historic populations to their original numbers.

Reconstruction--

Is defined as the act or process of reproducing by new construction the exact form and detail of a vanished building, structure, or object, or a part thereof, as it appeared at a specific period of time (ibid, p. 2).

In the case of biotic cultural resources, reconstruction would mean reintroducing a vanished community of plants or animals in its historic form.

Other Management Strategies

Where preservation strategies are not feasible there are two alternatives--release and replacement (Firth 1985, p. 56). Release from management allows natural processes to operate on the structure or biotic community. Over time this deliberate neglect usually means the loss of all but the most persistent elements of the structure or community and the recolonization of the site by native vegetation and wildlife. Replacement is a common event in the management of biotic cultural resources. Plant and animal communities are deliberately replaced by alternative communities which are easier to manage. For example a historic orchard may be replaced by a pasture.

Both release and replacement involve a loss of cultural resources, but this loss may be mitigated by two actions. A salvage operation could remove elements for preservation elsewhere such as in a museum. A record could document the historic characteristics of the resource, and this could be used in interpretive programs.

Alternative Management Strategies

The objective of the management of cultural resources is to convey the historical or cultural associations of a park or historic district. Alternative management strategies should be evaluated according to their contributions to this objective and their feasibility. Where an evaluation of the integrity of a resource indicates that sufficient historic characteristics remain to convey the historical associations of the place, then those characteristics should be preserved.

Preservation may involve protection, stabilization, and maintenance. Sometimes preservation is only feasible if rehabilitation permits contemporary use, but any necessary alterations must not threaten significant historic characteristics. Restoration should be undertaken only where it is essential for public understanding and appreciation of the historical associations. Reconstruction is not endorsed by the NPS, except in special circumstances where no other landscape feature with the same associative value has survived (National Park Service 1985). The feasibility of a historic preservation project depends on three factors: the availability of historical data, the ability to stabilize or recover historic characteristics, and the practicability of maintenance (Firth 1985, p. 27).

Preservation, restoration, and reconstruction projects must be guided by adequate historical data. Where research cannot provide a site specific description, it may be necessary to turn to general accounts of a locality and period. These sources can be used to define common characteristics, but they cannot substitute for site specific data. A general description should not be used as a basis for restoration, as it does not identify the particular characteristics of a time and place.

The ability to stabilize or recover historic characteristics depends on the degree to which the resource has changed since the historic period. Biotic cultural resources are particularly susceptible to disturbance caused by changes in management. It may be very difficult to reestablish the original boundaries or composition of a biotic community such as an orchard or pasture. The environmental impacts as well as the costs of any recovery program must be considered.

The success of a historic preservation project depends on the development of an appropriate maintenance strategy. It is seldom feasible to repeat exactly the historic maintenance techniques, particularly where these were labor intensive, so it may be necessary to seek alternatives. These alternatives should be evaluated in terms of their effect on the integrity of the resource, environmental impacts, costs and returns, and any administrative and legal constraints.

Evaluation of Alternatives

In the following sections, the significance of each landscape component is summarized, and any threat to its integrity noted. Where preservation is desirable and feasible, this is recommended. Where rehabilitation may be considered, the likely impact of any alterations on historic characteristics is assessed. Where a loss of integrity obscures the significance of a resource, then the feasibility of restoration or reconstruction is examined. Where none of these strategies are practicable, alternative management strategies are considered.

Carriage Roads--The carriage roads are historically significant as characteristic features of a Country Place Era estate and as a major artistic achievement. But public understanding and appreciation of their significance is jeopardized by their deterioration, the erosion of the roadway, the loss of roadside plantings, and changes in the sequence of views obtained from each road.

In the 1960s a proposal was made to rehabilitate some of the roads to accommodate automobile traffic. The scheme was abandoned because the proposed alterations would have

destroyed the historic character of the roads (Blue Ridge Parkway, 1969). Restoration is clearly desirable, but there are a number of problems standing in the way of a complete restoration.

There are many gaps in the historical record. Not enough is known to accurately restore all the construction details or to replace all the roadside plantings. A complete recovery of the historic road network is impossible, because the Blue Ridge Parkway cuts several lengths of road. Moreover restoration of the sequence of views along each road would involve reversing most of the changes which have occurred in and around the estate in the past forty years. The NPS is obligated to maintain the road system or its equivalent, but it cannot continue the labor intensive maintenance techniques used in the historic period. Restoration therefore can be only partial and selective.

The twenty miles of carriage roads still in use plus those sections which have been abandoned, but not cut off by the Parkway, should be rebuilt. The sections severed by the Parkway and abandoned should remain as they are, as the costs of reconnecting sections with bridges would far exceed any benefits. In rebuilding the roads, the objective should be to restore the characteristic horizontal alignment, vertical profile, and earth construction, but construction details should be modified where essential to reduce drainage problems and facilitate maintenance.

The original planting design cannot be fully restored, as there is insufficient historical data, but the pattern of planting which has survived should be preserved. This would require some replanting. Trees should be replanted in the gaps which have opened up in the avenues.

Individual sugar maples were replaced around Bass Lake in the historic period, and these avenues are now of uneven age. Uniformity could be obtained only by a felling and replanting program, and this was not the policy adopted by Bertha Cone.

The sequence of views obtained from the carriage roads was their raison d'etre. It is therefore most important to preserve as many of those views as possible. The practicability of recovering some of the lost views depends on the feasibility of restoring the orchards and pastures, which is considered below. It is certainly not possible to restore the historic character of the views towards Blowing Rock, but the NPS should seek the cooperation of the city to prevent further urban encroachment.

Orchards--The orchards are potentially important as a collection of old apple varieties; some of which are now rare. The combination of commercial with family orchards makes them representative of a turning point in the composition of American orchards. Unfortunately as a result of forty years of neglect, many of the rare cultivars have already been lost. It is very important therefore that valuable germplasm is salvaged as soon as possible.

The orchards are also historically significant as the primary agricultural enterprize introduced by Moses Cone on his estate. Moreover Flat Top Orchard lies at the center of all the views to and from the Manor House. Only a restoration of some part of the orchards would allow the public to understand their role in the historic landscape.

Mulford's orchard survey and his diary provide an unusually detailed record of the organization, composition, and management of the orchard in 1900. This provides a good basis for a restoration. The recovery of the three orchards, however, would be a very expensive and difficult operation involving the clearance of all the second growth woodland, the replanting of nearly seven thousand trees to recreate the permanent rows, and the rebuilding of the infrastructure of roads, tramways, and barns. It is doubtful whether sources can be found to supply all the original seventy-five varieties of apples, to say nothing of the other types of fruit grown in the orchards.

Orchard management techniques changed during the historic period, but they remained labor intensive. It is questionable whether the apple orchards were ever a profitable enterprize, and it is certain that they could not be so today if managed along historic lines. Moreover the environmental impacts of historic methods of management, particularly the spraying program, would be unacceptable within a National Park today. It is necessary, therefore, to consider a combination of several strategies--selective preservation and restoration plus some release and replacement.

Flat Top Orchard is the most important of the three orchards because of its location. It also is the least overgrown. It is logical, therefore, to concentrate preservation and restoration efforts there. The objectives should be to represent the historic character of both the commercial and the family orchard areas and to reestablish apple trees in the major vistas across the orchard. These objectives can only be achieved by a restoration of several sections of the orchard. This program should include measures to extend the life of the apple trees which survive in those sections. The restored areas could be managed using some modern orchard management techniques, but only those which do not alter the historic form of the orchard trees.

Replacement of any part of the historic orchard with a modern orchard would not be desirable, as the organization and composition of a modern orchard would be very different from the historic patterns. Those parts of the orchard which are not restored should at least be cleared of invading trees and shrubs, so that the historic boundaries of the orchard are visible.

China Orchard was the most difficult to develop and maintain because of the steepness of the slopes. It is not visible from any carriage road, and it has now reverted almost completely to hardwood forest. The release of this orchard has resulted in the development of an interesting flora, and this area should therefore remain undisturbed. However, the loss of historic resources should be mitigated by the salvage of the germplasm of old cultivars and by the preservation of a documentary record of its history.

Saw Mill Place was the smallest and least important of the three orchards. It is now very overgrown, and continued release is therefore one option. An alternative might be to replace the historic orchard with a collection of old southern apple varieties salvaged from National Parks throughout the region. While apples could be sold to the public, the primary objective should be to conserve genetic resources. If the collection were to be managed along the most efficient lines using dwarfing rootstock and up-to-date management techniques, it would not have the same appearance or characteristics as the historic orchards. It should therefore be kept separate from any preservation and restoration projects in Flat Top Orchard. The location of Saw Mill Place next to the main apple barn makes it very suitable for such an enterprise, because the barn could be rehabilitated as a center for all orchard management operations.

Pastures and Meadows--The stock farm enterprise in the historic period created pastoral scenes which were an important part of the design of the estate. Some of the fields were of more importance to the views from the carriage roads than others, and the NPS has tried to maintain those. Most of the fields which have been released were around the edges of the estate, away from the carriage roads. The character of the scenery has changed, however, as the summer grazing of beef cattle has replaced the historic practices of sheep and dairy farming. Only the meadows retain much of their historic appearance. Moreover the forest is advancing into some of the fields which are being used as pastures today, and this presents a threat to important views particularly on Rich Mountain.

It would be very difficult to restore the stock farm enterprise. The problems associated with operating a living history farm have been demonstrated at a number of parks within the Southeast Region (Firth 1985, p. 45), and leasing the fields to

local farmers cannot ensure the continuation of uneconomic farming practices. Sheep farming became difficult in the mountains, because so many sheep were killed by dogs, and dairy operations cannot be conducted by absentee farmers. Any year-round farming would require an investment in new buildings to house the stock, feed, and equipment, and it is doubtful if an adequate return could be obtained on the thin soils of these mountains. The present management policy of leasing the fields for low intensity grazing is likely to remain the most practicable solution, but an interpretive program is needed to allow the public to understand the differences between the present and the past.

Restoration of the open fields beside the Rich Mountain Road presents particularly difficult problems. The boundaries of the open spaces in 1940 are known, and it would be possible to clear the invading trees and shrubs back to those lines. But the problem of maintaining the pastures in their historic configuration would be difficult to resolve. Present grazing density is too low to prevent invasion by woody plants; but a program to improve the pastures, so they could support higher numbers of cattle, would probably not be economical and might increase the risks of soil erosion. Mowing the steeper slopes would be difficult, or impossible, with conventional machinery. In the historic period it was probably done by hand. If the steeper slopes were cleared, they would probably have to be recleared every few years. Therefore the objective should be to clear only those slopes which can be maintained by a combination of the present low intensity grazing plus mowing by machine. The de facto release of the steeper slopes should be accepted.

Forests, Deer Parks, and Plantations--The native forests were the matrix from which the orchards and pastures were cut. They provided the cool green shade through which the carriage roads ran and harbored the wildlife that the Cones sought to conserve. The present policies of the NPS adequately protect the forests from most anthropogenic disturbances, except for atmospheric pollution which requires action at the national level. The stretches of forest beside the carriage roads no longer look as tidy as they did in the historic period, but an increase in their natural values compensates for this change. A revival of wood cutting is not recommended.

Fragments of the original fences are the only signs of the deer parks within the forest. The growth of the wild deer population makes a restoration of the enclosures redundant. But the boundaries of the deer parks should be marked beside the Rich Mountain and Entrance roads, so that the public can appreciate that they were important features on these roads in the historic period.

The conifer plantations are historically significant as one of the landscape improvements initiated by Moses Cone, though most of the plantings occurred after 1908. The development of an understory of hardwoods within most stands presents a long-term threat to their survival. Preservation requires a silvicultural program to ensure the regeneration of the conifers. However, the introduction of a large-scale felling and replanting program would be undesirable. It is doubtful if the sale of the timber could pay for the costs of this operation, as many of the pines with their persistent lower branches would yield low-grade lumber. They were probably never intended to yield an economic return. Moreover, any commercial operation would have to be very carefully controlled to avoid major site disturbance and damage to the carriage roads during extraction. Instead, a small scale silvicultural program should be designed to ensure the continued dominance of the white pines and other conifers while minimizing site disturbance. This can be achieved best by encouraging natural regeneration of the conifers and by selectively controlling competing hardwoods.

Lakes and Ponds--The lakes were focal points in the landscape. Both lakes were encircled by carriage roads, but Bass Lake was particularly important because of its position. The NPS is committed to the restoration of Bass and Trout Lakes. At Bass Lake additional land has been acquired below the dam to allow it to be upgraded to withstand maximum flood conditions. The Trout Lake dam is smaller and more accessible, and no additional land acquisition is involved.

The various ponds are of lesser historical significance, but they did provide interesting features beside the carriage roads. It is not known whether the dam retaining the Upper Pond will have to be upgraded to withstand maximum flood conditions, but at some point the accumulated silt in the pond should be removed. The work begun by the Youth Conservation Corps on the restoration of the heart-shaped pools should be continued. This is the type of project where volunteer labor can be effectively employed. It might also be used for the restoration of the pool on the Rich Mountain Road.

Buildings and Gardens--The Manor House is the historic center of the estate and a good example of the architecture of the Country Place Era. This architecture is seen to its best advantage, if the house is approached along the Entrance Road from either Sandy Flat or Bass Lake. Unfortunately the change of use to a Craft Center and the location of the parking lot behind the house make it difficult for visitors from the Parkway to appreciate those qualities.

The buildings near the house--the Carriage House, servants' quarters, and laundry--plus the fruit and vegetable gardens were historically significant, because they were the infra-structure for the comfortable country living the Cones and their guests enjoyed. The other estate buildings, including the employees' houses, were equally significant, because they were an integral part of the operation of the estate. The removal of most of these structures was a short-sighted policy, for it would have been more feasible to preserve the dairy barn and milk shed than the dairy operation. Now that neither the buildings nor the orchard and farm operations are in evidence, it is difficult for the public to understand the historic character of the estate.

Various alternatives for the use and management of the four remaining historic buildings have been listed in the Historic Structure Report (Gilbert and Swanson, p. 5 in Buxton, 1987). These include: continuing the present uses, adding a visitor information center near the Manor House, moving the Craft Center to a new structure and converting the Manor House to a museum, and using the Carriage House and Apple Barn as part of a living history farm project.

Any change in the use of the Manor House would be an opportunity to restore the historic setting. An important objective should be to bring visitors to the house via one of the carriage roads, preferably the Entrance Road. There are several alternatives to the present access route from the Parkway which should be studied.

Some important elements in the historic setting, including the laundry building and female servants quarters, cannot be replaced, but the neglected gardens should not be allowed to disappear. The terraces below the carriage house and the clearing in the forest to the west of the house should be kept clear of invading trees and shrubs, and surviving garden plants such as the roses, raspberries, and peonies should be saved. A full reconstruction of the gardens would require more detailed information on their historic layout, and the employment of two skilled, full-time gardeners. But a partial reconstruction should be considered as part of an interpretive program.

The Carriage House and Apple Barn were associated with two of the most important features of the historic landscape. They are presently used for storage and are not open to the public. The most appropriate uses would be ones which were related to their historic functions. The Carriage House at one time

provided a base for the operation of a carriage ride concession. The NPS should seek to revive that activity. The Apple Barn is too far away from the Parkway to be a good location for a museum or information center. But it could enjoy a new life, if the Saw Mill Place orchard were developed as a collection of southern apple varieties as proposed above.

The sites of the demolished estate buildings and employees' homes have become overgrown after nearly forty years and are difficult to recognize today. It would be costly to clear and maintain each site, but in most cases the closure of the tree canopy over them will cause some of the scrub vegetation to die out, so they will become more visible in time. However, a program to record the position of all the major barns and the employees' homes should be developed.

The Cone Cemetery has been maintained by the NPS in accordance with its obligations under the 1949 indenture. However, the original planting design has been modified by the loss of the lines of Fraser fir. Although firs are now regenerating, there remains the possibility that this new generation will also be killed. It is more important to preserve the larger setting of the meadow and the mountain road than to restore the lines of trees.

CHAPTER SIX

RECOMMENDATIONS

GOALS

The aim of management should be to preserve sufficient evidence of the historic character of the park to enable the public to understand its significance. The Cone estate and the Carnegie estate on Cumberland Island are the only examples of Country Place Era landscapes within the care of the NPS in the Southeast. These landscapes encapsulate many of the important ideas of their time--ideas in the realms of landscape and architectural aesthetics, scientific agriculture, environmental conservation, and social and economic theory. On Cumberland Island environmental conservation was a dominant theme. At Flat Top Manor the primary achievement was in the fields of landscape architecture and engineering with the development of the extraordinary system of carriage roads. The location of this estate beside the Blue Ridge Parkway provides an unequalled opportunity for visitors to compare road design from the age of the horse and carriage with road design in the modern era. In both cases the design of the road was not limited to the roadway but involved the entire landscape visible from the road. Both systems are models of excellence in the field of recreational highway design.

A restoration of the carriage road system is, therefore, of the first importance, but this must include measures to preserve as much as possible of the historic landscape visible from the roads. This will require a mix of all the preservation strategies defined in Chapter Five--protection, stabilization, preservation, rehabilitation, and reconstruction--and where preservation is not feasible, a program to salvage or record disappearing resources.

CARRIAGE ROADS

The Road System--

1. A restoration plan for the carriage roads should be developed. While priority may be given to restoring certain roads because of their intensity of use and present condition, it is important that the carriage road system is treated as a whole. The plan should include all the carriage roads, except those stretches cut off by the Parkway, see map 21. The severed sections should remain undisturbed. While they can still be detected on the ground, there is a need for a documentary record, which can be used in an interpretive program to enable visitors to understand the original layout. Visitors should also be made aware of which lengths of road were added by the NPS, as these were not built to the same standards and do not contribute to the sequence of views planned for the historic roads.

2. Where it is not possible to restore a section of carriage road, because it has been built over or removed, an alternative path for pedestrians and horse riders should be provided. On the south side of Trout Lake a section of carriage road has been replaced by the road leading to the Trout Lake parking lot. A bridleway and footpath should be provided beside this road. On

the east side of Trout Lake another section of carriage road was removed when the Flannery Fork Road was realigned. An alternative bridleway and footpath has already been provided here. Below the Esplanade, the lower road was obliterated when the slope above it was regraded by the NPS. A footpath should be provided along the line of this road as a part of the restoration work in Flat Top Orchard recommended below. These bridleways and footpaths are needed to replace missing sections, but they should not be built to the same standards as the original roads. Visitors should be able to distinguish the replacements from the original carriage roads.

3. The NPS has continued the Cones' policy of keeping automobile traffic off the carriage roads. This policy should be continued. The admission of automobiles would necessitate changes in the alignment and construction of the roads and would, therefore, alter their historic character. However, this policy has created the following problems which need to be resolved:

- The approach to the Manor House from the rear via the loop road from the Parkway is quite inappropriate. A study of alternative routes is recommended below in the section on buildings and gardens.
- The new parking lot to be provided on the west side of Bass Lake will disrupt some elements of the historic landscape. The line of the access road selected and surveyed in 1953 will remove a section of the hemlock hedge beside U.S. Route 221 and will cut across the Duncan Road at grade. The parking lot will replace one of the pee gee hydrangea beds beside the lake. These negative impacts should be mitigated by careful design of the entrance, crossing, and car park.

4. The winding course of the carriage roads is a part of their charm, but it has led to the creation of unofficial short cuts in some areas. The resultant trails are a source of erosion and confusion. The NPS has posted signs requesting horse riders to keep on the carriage roads. These signs should be supplemented by fencing and brushing to close short-cuts across hairpin bends in forest areas. On Rich Mountain a short-cut across the pastures from the site of the Colt House to the summit is badly eroded. It might not be feasible to close this route without providing some alternative. There is a farm road which could provide a short route to and from the summit for those who do not have the time to follow the carriage road, see map 21. This road should be brought up to the same standard of repair as the Colt House Road, and signs should be posted to make walkers and riders aware of its existence. The Colt House Road and the Black Bottom Road have been maintained by the NPS, because they provide more direct lines of access than the carriage roads. These farm roads do not have the same characteristics as the carriage roads and should be clearly distinguished from the latter on signs and in interpretive programs.

Construction and Maintenance--

1. A complete survey of each carriage road should be made as the first step in developing a restoration plan. The problems along each section of road should be noted including eroded cross sections, disrupted drainage systems, and damaged retaining walls. As there are no extant construction documents an estimate of the amount of erosion will have to be based on site evidence. The restoration plan should include working

drawings (including plan and profile sheets, typical cross sections, and construction details), specifications and a bill of quantities, and a cost estimate for each section.

2. The original horizontal alignment and vertical profile of each carriage road should be restored as far as these can be determined. Any change to the horizontal alignment, such as a modification of a hairpin bend, or to the vertical profile, such as the provision of shallow dips on inclines, would alter the character of these roads and should be avoided.

3. The cross section of each earth road should be rebuilt to the original width and camber, where these can be determined. Otherwise the practices recommended in the standard road building texts of the turn of the century should be followed. In most areas the roads cannot be reformed by a scraping grader, as they have been too deeply eroded. Earth will have to be brought in and consolidated. A source will have to be found either on site or off site to provide suitable earth fill.

4. It is essential that the drainage system is brought back into operation to prevent continuing erosion of the road surface. The adequacy of the historic drainage system should be evaluated based on the run off from a ten year storm. Where necessary gutters should be redesigned and culverts added to ensure proper drainage, but the original drainage system should be preserved as far as possible. Damaged culverts should be replaced, and stone headwalls should be rebuilt or added where necessary. The NPS has been using corrugated metal pipes to replace earthenware pipes, but concrete pipes are preferred, as they will not rust. In several places a culvert carrying a stream protrudes from a retaining wall on the downslope side of the road. Metal pipes are particularly unsightly in these locations and should be replaced.

5. Great care should be taken while rebuilding the roads to avoid damage to adjacent retaining walls and the trees and shrubs planted alongside the roads. This means that the road building equipment should be of a type and size which can be manipulated within the twelve and fifteen feet wide roadways.

6. Once the carriage roads have been rebuilt, it is essential that they are properly maintained. In the historic period the roads were raked by hand at least four times a year. This is impractical today, but the drainage channels should be cleaned out twice a year. The gutters can be cleaned by a motor grader, but the culverts will have to be cleaned by hand.

The schedule of maintenance for the road surface should vary with location and use. Sections of road within the forest will require more frequent maintenance, because they remain shaded and damp. Sections used by large numbers of riders on horseback will also require more attention.

It is particularly difficult to maintain earth roads properly, if they receive heavy use during the winter when they do not dry out. In the historic period the Entrance Road from Sandy Flat was a macadam road, and crushed stone was added to the road to the main apple barn. There is, therefore, a precedent for improving roads receiving a lot of use during wet weather by the addition of crushed stone. It is important that the stone is properly applied so that the material binds well, otherwise the treatment is ineffective, and the roads will continue to deteriorate. However, the conversion of the earth roads to crushed stone roads would change their character. It might be preferable to close certain sections of road to riders on horseback during the winter.

More information is needed on the traffic patterns on the estate, the types and numbers of users in different seasons, and the effects on the roads before these alternatives can be evaluated.

Retaining Walls and Other Structures--

1. The dry stone walls above and below the roads are handsome features and should be carefully repaired where they have been disturbed. The repaired sections should match the original in structure, material, and quality of workmanship. Great care should be taken to avoid damage to the retaining walls during the restoration of the roadways and during any silvicultural operations.

2. The remaining bridges and gates on the estate should be preserved. The bridges and the stone walls associated with the spillway at Bass Lake should be protected during the forthcoming work to strengthen the dam. Some repair work is needed to the stonework adjacent to the Bass Lake entrance gate.

Roadside Planting--

1. The native trees and shrubs planted in informal groups alongside the carriage roads in the historic period should be left to regenerate naturally, but a replanting program is needed to renew the formal planting patterns. Replacements should be planted in the gaps which have opened up in the lines of sugar maples, tulip poplars, and white ashes. This will produce an uneven-aged structure in each avenue, but this should be accepted as characteristic of old avenues and in conformity with the historic practice of replacing individual trees.

The importation of sugar maples from New Hampshire in the historic period might be the reason some of the trees did not do well, so maples of a southern provenance should be used. The replacement of avenue trees in the white pine stands should be accompanied by the selective cutting of white pines recommended below in the section on conifer plantations.

Tulip poplar, in particular, requires adequate light to develop. The lines of Fraser firs should not be replanted. They are relatively short-lived, and there is a risk of further losses; moreover, their absence is not very noticeable within the pine stands.

2. The rhododendrons and mountain laurels have been cut back in several places where they were overgrowing the carriage road, and selective pruning should be continued. However, they will not resprout unless there is adequate light, and this is a problem in these stands. Therefore the pruning should be coordinated with the silvicultural program as far as possible. The shrubs are regenerating in areas affected by the die-back associated with a root fungus, but the situation needs to be monitored. The concentration of *Rhododendron catawbiense* in the center of hairpin bends is a characteristic feature of the historic planting design, and natural regeneration after dieback may not preserve this pattern. If necessary these areas should be replanted with *R. catawbiense*.

3. Two of the three pee gee hydrangea beds on the west side of Bass Lake should be preserved. The invading white pines should be cut out taking care to minimize damage to the surviving hydrangeas. The old hydrangeas should be pruned to remove dead and damaged branches and to encourage new growth, but the pruning should be done conservatively to preserve the size and form of the old plants. A planting program should replace missing plants within the original rows, and a maintenance program with annual feeding and mulching should be undertaken.

The middle hydrangea bed is to be replaced by the new parking lot, but there should be room for at least two rows of hydrangeas in front of it. These will preserve some of the historic character of the area and provide a screen between the parking lot and the carriage road.

Views--

1. The growth of trees and shrubs in the foreground has obscured several views, so a vista clearance program should be developed. Some of the important views are noted on maps 9 through 13, but a more complete survey is required to provide a basis for the program. It is important to distinguish framed views from filtered views and to plan the cutting accordingly.

2. The changes which have occurred in Flat Top Orchard over the past forty years have affected the sequence of views from several carriage roads, the Manor House, and Bass Lake. A partial restoration of this orchard is recommended below in the section on orchards.

3. The invasion of the Rich Mountain pastures by trees and shrubs threatens to remove the experience of driving across high open spaces, which was characteristic of the Rich Mountain carriage road. A partial clearance of this area is recommended below in the section on pastures.

4. The NPS should seek the cooperation of the city of Blowing Rock and appropriate state and local agencies in preventing further encroachment by urban developments upon views from the carriage roads. Priority should be given to preserving the view from the Manor House and Esplanade. As a first step, the NPS might sponsor a study to define the areas visible from these points which may be affected by urban growth and to examine appropriate control strategies.

ORCHARDS

Genetic Resources--The germplasm of old apple cultivars now considered rare should be salvaged from the abandoned orchards. The search undertaken for this report by Dr. Elwood Fisher should be continued and extended. The maps compiled by F. L. Mulford in 1900 have been used as a guide in this search, but later changes in the layout of the orchards make it possible that some old apple cultivars have been missed. The search has been coordinated with the project being conducted by the North Atlantic Regional Office (NARO) of the NPS and the University of Massachusetts to inventory and conserve genetic resources in the form of historically significant fruit trees throughout the National Park System. This coordination has been useful and should be continued.

A clonal germplasm repository will be needed to store any material salvaged from the orchards. The cooperation of individuals, universities, and state and federal agencies should be sought in the selection of a suitable repository. This should be done within the context of the U.S. National Plant Germplasm System.

The role of the NPS within this system is being examined as part of the NARO's inventory and conservation project. One possibility which should be investigated is the establishment of regional repositories at NPS sites. These collections could conserve genetic resources associated with cultural landscapes within the National Park System. A study should be made of the suitability of the Saw Mill Place Orchard site for such a regional repository specializing in apple cultivars. The feasibility of using the Apple Barn to house a management and interpretation program should be examined as part of this study.

Flat Top Orchard--

1. Three parts of the orchard should be restored: the western edge beside the Duncan Road; the northeastern corner within the hairpin bend on the Entrance Road; and the central area below the Esplanade, see map 21.

The western area corresponds to maps 5 and 6 in Mulford's orchard survey, see appendix 1. This is the area with the highest level of integrity today; at least sixty old apple trees

survive. The soils are better than in other parts of the orchard, and the slopes are more gentle.

This area can be seen from the Duncan Road, the Esplanade, and the junction of the Entrance and Stringfellow Roads. The objective in this area should be to preserve as many of the old trees as possible and to replace the missing trees within the rows to recover the historic characteristics of this commercial section of the orchard.

The northeastern corner contained the family orchard which Mulford mapped as sections 21, 22, and 23. Unfortunately there are few surviving apple trees in this area. The highest land which now lies between the Entrance Road and the Parkway has reverted to forest and had only two surviving apple trees in 1988. This land should be left in forest to screen the Parkway and to avoid damage to the retaining wall beside the carriage road. The land between the upper and lower stretches of the Entrance Road is partly overgrown, but there are twenty surviving apple trees. The area is visible from the Entrance Road and is bisected by an old orchard road. The objective should be to preserve the old trees and to replace a sufficient number of missing trees to represent the historic composition of the orchard.

The central area corresponds to the upper edge of maps 11 and 14 in Mulford's survey. This area is overlooked by the Manor House and, therefore, has the highest visibility. The slopes are relatively gentle and not overgrown, but there are no surviving apple trees. The objective in this area should be to reestablish several rows of apple trees, so that all visitors to the Manor House can understand that the area was an orchard.

2. A restoration and management plan should be developed for these three areas. The plan should be based on an analysis of the conditions at each site, including the soils, microclimate, and state of any surviving apple trees. The plan should include a clearance and replanting program, a description of orchard management procedures, an integrated pest management strategy, and an estimate of labor requirements and costs.

3. In clearing the areas of any invading trees and scrub, care should be taken to avoid damage to the remaining apple trees. Apple trees are capable of living 150 to 200 years, so some of the historic trees could be expected to live for many more years, if they are protected. The health of the old apple trees should be improved by a program of pruning, fertilization, and pest management.

4. In replanting each area the original planting plan, as recorded by Mulford, should be followed as far as possible. In the western area York Imperial was the main apple variety near the road with Albermarle Pippin grown downslope, see map 16. The filler trees mainly bore Ben Davis apples, but a few bore Magnum Bonums.

In the central area the permanent trees produced Mother apples, and the fillers produced Magnum Bonums. But immediately below the Esplanade there were a few North Carolina Beauty apple trees, and this type should be included in the replanting program.

In the northeast corner there are reasons to depart from the original layout. Most of the center of the site was planted with Jonathan and Ben Davis apple trees, and the family orchard trees were concentrated at the upper and lower margins. Instead of recreating this pattern, a representative collection of the seventy-five varieties of apple grown in the Cone orchards should be planted. It may not be possible to obtain all the varieties. Assistance should be sought in the acquisition of rare cultivars from experts in southern apple varieties, including Dr. Elwood Fisher of Harrisonburg, Virginia, and Mr. Lee Calhoun of Pittsboro, North Carolina, both of whom have been involved in this project.

5. The historic orchard management techniques should be followed when they affect the form of the trees. Seedling rootstocks should be used as in the historic period, and the trees should be pruned to create half standards with open crowns. Modern management techniques may be employed where the form of the tree is not affected. The objective of orchard management operations, such as pruning, fertilization, and pest management, should be to maintain the trees in good health rather than to maximize fruit production. Orchard management requires a high level of expertise, and the NPS should ensure that personnel who are knowledgeable, skilled, and commited to the restoration of the orchard are engaged on the project.

6. There are a number of alternative ways of managing the apple harvest, including sale to a commercial company and a "pick your own" program. Other units of the National Park System which have historic orchards have already tried some of these alternatives. The NPS should consult with these units as to the method which best combines administrative convenience and financial return.

7. The three areas should be fenced to exclude cattle. It may be necessary also to protect the trees from deer. The ground between the trees should be maintained in grass as in the historic period, therefore these areas will have to be mown.

8. The remainder of the area occupied by Flat Top Orchard in the historic period should be cleared of invading trees and shrubs and be maintained as a pasture. Clearing the area will make the historic boundaries of the orchard visible again, see map 21. However, the small areas above the retaining walls beside the Entrance Road should not be cleared, because the operation would be likely to damage the walls. If cleared, these areas would be difficult to maintain. The steep banks beside the Orchard Road, which have been colonized by rhododendron and mountain laurel, also should not be cleared. Some shade trees should be left in the bottom of the valley, where they will not be noticeable from the Manor House.

Most of the remaining apple trees amidst the invading hardwoods and pines cannot be saved without taking extraordinary measures, but a few apple trees still stand in clearings, and these should be saved. There is probably some merchantable timber within the orchard area, and the sale of this would help offset the cost of clearance. Clearance operations should be planned to minimize site disturbance, and it may be wise to proceed gradually, clearing and reseeding small areas. The removal of stumps would lead to soil erosion on the steep slopes, so it will be necessary to prevent the hardwoods from resprouting by the use of herbicides.

It may be difficult to prevent some reinvasion of the steep slopes by woody species. Browsing by cattle has in the past delayed, but not prevented, vegetation succession; and some of the slopes are too steep to mow with conventional machinery. It may eventually be necessary to repeat the clearance program. This would be less costly and less damaging to the site, if the invading trees were removed while they were still small.

China and Saw Mill Place Orchards--These orchard areas should continue to be released from management, but they should be included in a further search for rare apple cultivars. The historical boundaries of both orchards can still be identified on the ground, but this will become progressively more difficult as the second growth forest matures. Permanent markers should be placed at intervals to demarcate the edges of the orchards, so they can be used in interpretative programs in the future. As recommended above, the feasibility of using the Saw Mill Place site for a regional collection of apple cultivars should be investigated.

PASTURES AND MEADOWS

The Field Pattern--The present pattern of pastures and meadows should be maintained. Those fields which were released when the NPS acquired the estate have now reverted to forest. While this has changed some of the views from the carriage roads, the change is not significant enough to justify a policy of reclearance. Nearly all the remaining pastures and meadows are adjacent to, or crossed by, carriage roads, and the release of any of these would lead to a major change in the sequence of views from one or more roads.

The Rich Mountain Pastures--A restoration and management plan should be developed for the Rich Mountain pastures which are threatened by an invasion of trees and shrubs. The plan should identify the areas to be cleared, prescribe a method of clearance, and recommend a program to prevent the regrowth of woody species in cleared areas.

In defining the precise boundaries of the areas to be cleared, the following factors should be taken into consideration. The historic sequence of views from the Rich Mountain carriage road should be reestablished as far as possible. However, the views downslope are more important than the views upslope, the latter being restricted by the rising ground. The view where the road first emerges from the forest into the pasture, and the views from the summit are the most important. Some shade trees were growing in the pastures in the historic period, and these enhanced the parklike character of the scene. Shade trees should be left, therefore, and these should include both old trees surviving from the historic period and some younger replacements The steep banks beside the carriage road near the site of the Colt House have been colonized by rhododendrons and mountain laurels. These shrubs help to stabilize the banks and should not be removed. The steepest slopes, such as those to the northeast of the site of the Colt House, would be very difficult to maintain free of invading woody species. If they cannot be maintained, they should not be cleared.

In specifying the method of clearance, the prevention of soil erosion should be the primary consideration. It is doubtful that any of the timber has commercial value, and therefore, a method of disposing of the slash will have to be found.

The present use of the Rich Mountain pastures as summer grazing for beef cattle has not prevented them from being invaded by trees and shrubs. Therefore, the present stocking limits and the pattern of fencing should be reevaluated. This evaluation should be based on a close study of the character of the pastures, including the areas of woodland pasture within the fences. The composition of the grasslands is very varied, and their botanical interest as well as their potential for improvement should be investigated. The present special use permits require the permittee to mow the pastures at least twice a year to keep weeds, briars, and sprouts under reasonable control. However, mowing with conventional machinery is difficult or impossible on the steeper slopes. The NPS should investigate alternatives, including the acquisition of special equipment capable of operating on steep slopes. This equipment may also be useful elsewhere on the Parkway, as the problem of maintaining grasslands on steep slopes is not confined to the Cone Estate.

FORESTS, DEER PARKS, AND CONIFER PLANTATIONS

Forests--The native hardwood forest on the mountain slopes should be surveyed to identify any areas of special interest, including the habitats of rare and endangered species. Although the forests were used to supply firewood and small amounts of timber in the historic period, they have not been subject to any large scale disturbances. They now contain some fine stands of old trees and may have other areas of unusual interest.

Deer Parks--The ridge top part of the Rich Mountain deer park has been used as a pasture since the deer were removed, and this practice should continue. The area is now becoming overgrown, and it should be included in the restoration work recommended for the Rich Mountain pastures. Permanent markers should be placed beside the Rich Mountain Deer Park Road and the Entrance Road to record the location of the two deer parks for use in interpretive programs.

Conifer Plantations--Most of the white pines, probably 70 to 80 percent, can be expected to live at least another 150 years. The site conditions are favorable, and their density is fairly low. But there is a need to encourage the natural regeneration of the pines, and to this end a silvicultural program should be initiated. The program should be based on small group selection cuts, and the control of competition from hardwoods in the understory, to allow the next generation of pines to grow up into the gaps. Once the young pines have become established--after ten years or so--there would be no need for any further control of the understory.

This program should begin where some mortality has already occurred, but priority should also be given to areas near the carriage roads. In these areas the silvicultural program should be coordinated with the replacement of missing tulip poplars and sugar maples, and with the pruning of rhododendrons. Great care must be taken beside the stretches of the Entrance Road, where timber extraction could damage dry stone retaining walls. The timber extracted will be of varying quality, and the quantities should be small, so it is doubtful whether the program can be financed by the sale of that timber.

White pines have replaced the Fraser firs south of Bass Lake, and the pines should be allowed to remain. However, the young firs in the understory should be released from the competition of hardwoods and allowed to grow on into the canopy. This is not a long-lived species and is subject to further pest damage, so it can only play a minor role in the conifer stands.

No action should be taken to regenerate the spruce and hemlock stands beside Bass Lake until gaps start to open up. At that time it will be necessary to prevent hardwoods from replacing them through a program similar to the one recommended for the white pine stands.

Lakes and Ponds

Bass Lake--The drainage of the lake provides an opportunity to restore the edges to their historic condition. The trees and shrubs which have colonized the margins of the lake in the past forty years should be removed. Some silt has accumulated at the west end of the lake bed, and this should be dug out. Some stabilization work is needed to preserve the foundations of the boat house, and this should be done also while the lake is empty.

When the work on the dam is completed and the lake is refilled, it should be restocked with bass, and the waterlilies should be replanted in the shallows. The lake will once again become a focal point in the park and it is likely to attract many visitors. The margins of the lake should be maintained to the same standards as the lawn in front of the Manor House, as the lake area should be seen as the ornamental gardens of the estate.

Trout Lake--The dam was upgraded to withstand maximum flood conditions. The lake should be restocked with trout. Access to the lakeshore from the parking lot should be improved. At present there are a number of eroded trails; these should be redesigned and resurfaced. The rhododendron on the west side of the lake should be pruned in places to improve access to the water's edge.

Ponds--It should be determined whether work is required to upgrade the dam retaining the Upper Pond. If the pond has to be drained, then accumulated silt should be removed, and the pond should be restored to the size and shape shown in the 1909 survey, see map 5. The trees which are now growing beside the pond should be removed, so that the pond is visible from the Orchard Road and the Esplanade.

The heart-shaped pools beside Bass Lake and the cascade pool on the Rich Mountain Road should be restored. The restoration work should be based on a study of the original construction details. Care should be taken to match the originals in structure, material, and quality of workmanship.

BUILDINGS AND GARDENS

The Manor House Area--A study is needed to determine the most appropriate use of the Manor House and the best location for the Craft Center. This study should consider the need for a visitor center, housing an interpretive program to enable the public to understand and to appreciate the historic character of the Cone estate. It should also consider the accommodation requirements of the Southern Highlands Handicraft Guild and the need to provide more parking spaces for visitors from the Parkway. The study should look at the circulation routes for vehicles, pedestrians, and horses within the Manor House area as a whole. Alternative ways of reaching the house from the Parkway should be investigated. There are several alternatives which would allow visitors to approach the house via one of the carriage roads, and thus, to see it in its proper relationship to the setting. Handicapped access would be required between the Esplanade and the porch of the house; the port cochere is one possible route which should be studied.

The use of abandoned stretches of carriage road in the Manor House area as footpaths and bridleways should be considered. The construction of a footpath along the line of the road below the Esplanade has already been recommended to provide access to a restored section of Flat Top Orchard. The short length of road which formerly connected the Entrance and Wadkins Roads, beside which one of the Servants' Quarters is now located, might be useful as a short-cut between the Entrance Road and the underpass leading to the Flat Top Mountain Road.

The two garden areas near the Manor House should be cleared of invading vegetation. Care should be taken to preserve the roses and raspberries in the terraced garden, and the peonies in the garden behind the house. The latter garden should be maintained as an open space under grass with markers to indicate the positions of the tennis court, croquet lawn, and bowling alley. The terraced garden might be partially reconstructed as part of an interpretive program. The fruits and vegetables listed in table 7 could be grown to indicate the range of produce grown for the Cones in their own gardens.

Footpaths should be provided through the two gardens. The original path systems might be revealed using archeological methods. There are steps leading down into the terraced garden, and there are steps in the retaining wall beside the Entrance Road below, so it should be possible to link these. The western garden is approached via the Figure 8 Walk, and a garden footpath should be connected to that walk.

Remaining Buildings--The Carriage House and Apple Barn should be opened to visitors as part of a program to interpret the history of the estate. The reintroduction of carriage rides based at the Carriage House would enable visitors to appreciate the design of the roads, as well as offer an enjoyable form of gentle recreation. A study of the feasibility of using the Apple Barn in association with the development of a new orchard at Saw Mill Place was recommended under **Orchards**. The male Servants' Quarters could be returned to its original position, if the access to the Manor House were to be redesigned. This

possibility should be included in the study of the Manor House area recommended above.

Sites of Demolished Buildings--A sign should be placed on the site of each of the important buildings--the barns and the employees' homes. Then visitors exploring the park could discover them and understand that this was once an inhabited landscape and home to about thirty-five families.

Cone Cemetery--The cemetery area should be preserved in its present form. The short-cut, which has been created between the cemetery and the Flat Top Mountain Road beyond, may in part be due to the difficulty visitors must have in recognizing the course of the carriage road across the meadow. The restoration of the carriage road should encourage visitors to follow the historic route, but a sign is needed at the junction of the mountain and the cemetery roads.

PRIORITIES

The following order of priority is recommended:

1. The salvage of germplasm from the orchards should be carried out as soon as possible as any delay is likely to mean further losses.

2. The road to the new parking lot beside Bass Lake has been built. The trees and shrubs which have invaded the edges of Bass Lake should be removed while the lake bed is dry. The parking lot should be completed when the construction traffic withdraws, and at that time other restoration work, including the clearance and replanting of the hydrangeas beds, should be carried out.

3. The preparation of restoration and management plans for the carriage roads, Flat Top Orchard, and the Rich Mountain pastures should be coordinated, as work in the orchard and pastures will affect adjacent carriage roads. The restoration of the three areas of the orchard recommended above should be given priority to minimize further losses of old apple trees. The present agreement governing the grazing of the pastures on Rich Mountain expired in 1991, and the clearance and management plan should be developed before a new agreement is drawn up. The restoration of the carriage roads is the largest and most expensive undertaking which will have to be completed over several years. However, it should be viewed as a high priority because of the historical significance of the road system.

4. The study of the future use of the Manor House area and access to it from the Parkway will have to consider a number of complicated issues and will involve consultations with the Southern Highlands Handicraft Guild and other interested people. It will therefore take some time to arrive at an agreed course of action. The study should designate a space for the development of an interpretive program, but in the meantime new pamphlets and signs should be provided to orient visitors from the Parkway to the history and geography of the estate.

5. The study of the feasibility of developing a collection of southern apple cultivars in Saw Mill Place, beside the Apple Barn, should be initiated as a follow-up to the historic orchard tree inventory and conservation project now being conducted by the North Atlantic Regional Office and the University of Massachusetts.

6. The definition of the areas visible from the park, in which urban growth ought to be controlled, should be initiated as a follow-up to the recent development of a Geographic Information System for the Parkway.

7. The silvicultural program in the conifer plantations should be a small scale operation continuing over many years. The first selection cuts should be made adjacent to the gaps in the lines of tulip poplars and sugar maples on the carriage roads, so that the increase in light encourages the replacement poplars and maples to grow as well as stimulating the natural regeneration of the pines.

8. Other recommendations should be implemented when the opportunity arises. Some of the preservation and restoration work may be done by volunteers, for example, the clearing of the gardens and the rebuilding of the stone lined pools. The public should be involved as much as possible in the restoration work, so that they may understand the reasons for the inevitable site disturbances and take pride in the completed work.

TABLES

Table 1. Inventory of Trees, Shrubs and Vines in the Nursery in 1900

Table 2. Inventory of the Fruit Trees in the Orchards in 1900

Table 3. Characteristics of the Apples Grown in the Orchards

Table 4. Fertilizer Mixture Used in 1900

Table 5. Spraying Mixtures Used in the Orchards in 1900

Table 6. Grass Seed Mixtures Used in 1900

Table 7. Fruits and Vegetables in the Terraced Garden in 1900

Table 8. Contents of the Hotbed March 1900

Table 9. Rarity of the Apple Cultivars Grown in the Moses H. Cone Orchards

TABLE 1

Inventory of Trees, Shrubs, and Vines in the Nursery in 1900
Source: F. L. Mulford's diary, pp. 23 and 25 (Cone docs. item 1).

Row	
	1 Tsuga caroliniana
	2 Pinus strobus, Tsuga caroliniana
	3 Tsuga caroliniana
	4 Tsuga caroliniana
	5 Abies fraseri, Picea nigra (mariana)
	6 Picea nigra, Pinus strobus
	7 Pinus strobus, Tsuga caroliniana, Kalmia latifolia
	8 Kalmia latifolia
	9 Kalmia latifolia
	10 Kalmia latifolia, Rhododendron maximum
	11 Rhododendron maximum, Leiophyllum buxifolium
	12 Leiophyllum buxifolium, Tilia americana, Ulmus americana
	13 Ulmus americana, Liriodendron tulipifera, Prunus pennsylvanica
	14 Prunus pennsylvanica, Acer rubrum, Betula lutea
	15 Betula lutea, Azalea calendulacea, Fraxinus americana
	16 Fraxinus americana, Cornus alternifolia
	17 Cornus alternifolia, Acer striatum (pensylvanicum), Azalea viscosa
	18 Azalea viscosa, Acer saccharum
	19 Acer saccharum
	20 Acer saccharum
	21 Acer saccharum
	22 Acer saccharum
	23 Acer saccharum, Betula lenta
	24 Betula lenta, Acer spicatum, Hydrangea arborescens
	25 Hydrangea arborescens, Clematis virginiana
	26 Clematis virginiana Azalea 1
	27 Willows, Azalea 1, Azalea 2, York Imperial
	28 York Imperial
	29 York Imperial
	30 York Imperial, Jonathan
	31 Jonathan
	32 Jonathan

TABLE 2

Inventory of the Fruit Trees in the Orchards in 1900
Sources: F. L. Mulford's diary, pp. 7-19 (Cone docs. item 1)
and Orchard maps (Cone docs., item 2).

NOTE: The first sixteen trees listed were the commercial cultivars grown in the main part of each orchard. Trees classed as "permanents" would be retained, and trees classed as "fillers" would be removed as the orchard developed.

Permanent

1 Albemarle Pippin
2 Virginia Beauty
3 York Imperial
4 Mother
5 North Carolina Beauty
6 Gragg
7 Spitzenberg
8 Baldwin
9

Permanent and Filler

11 Royal Limber Twig
12 Arkansas Mammoth Black
13 Jonathan
14 Red Limber Twig

Filler

15 Ben Davis
16 Wine Sap
17 Bonum
18 Missouri Pippin
19

Family Orchard

31 Arkansas Beauty
32 Baltimore Red
33 Bigger Staff
34 Buckingham

Family Orchard

35 Bullock
36 Camac Sweet
37 Early Harvest
38 Early Joe
39 English Golden Russet
40 Gano
41 Gloria Mundi
42 Golden Russet American
43 Gravenstein
44 Grimes Golden
45 Horse
46 Hubbardston Nonsuch

47 Keever Seedling
48 Lady
49 Lane
50 Maiden Blush
51 Maryland
52 May
53 North Carolina Beauty
54 North Carolina Keeper
55 Northern Spy
56 Pomme Grilot
57 Pride of North Carolina
58 Rawles Janet
59 Raspberry
60 Red Astrachan
61 Red June
62 Red Siberian Crab
63 Romanite
64 Rome Beauty
65 Roxbury Russet
66 Smith Cider
67 Smokehouse
68 South Fork Seedling
69 Star
70 Summer Pearmain
71 Summer Queen
72 Summer Rose
73 Sweet Pippin
74 Tolman Sweet
75 Transcendant Crab
76 Twenty Ounce
77 Vandeveer
78 Wagener
79 Wealthy
80 Winter Joe
81 Yellow Belleflower
82 Yellow Siberian Crab
83 Yellow Transparent
84 Bismark
85 Canada Red
86 Primate
87 Sherwood
88 Scotch Red

Pears

301 Anjou
302 Bartlett
303 Belle Lucrative
304 Beurre Clargieu
305 Bosc
306 Clapps

Pears

307 Early Green Sugar
308 Esther Beurre
309 Idaho
310 Japanese Golden Russet
311 Kieffer
312 Koonce
313 Lawrence
314 LeConte
315 Lincoln Coreless
316 Sickle
317 Tyson
318 Vermont Beauty
319 Wilder
320 Winter Nelis

Peaches

401 Alexander

402 Amsden June
403 Champion Cling
404 Chinese Cling
405 Early Crawford
406 Early Rivers
407 Elberta
408 Eton's Golden
409 General Green
410 George the Fourth
411 Greensboro
412 Heath's Early
413 Heath's Late
414 Indian
415 Iron Mountain
416 Largon
417 Late Crawford
418 LeGrande
419 Manning's Elizabeth
420 Old Mixon Free
421 Petite Marguerite
422 St. John
423 Sallie Worrell
424 Sneed
425 Stump the World
426 Southern Queen
427 Triumph
428 Tyson
429 Wonderful
430 Governor Garlen
431 Prestwood
432 Virginia Peach
433 Hartley

Nectarines

450 Boston
451 Early Violet
452 Ku Kucaa (?)

Plums

501 Blue
502 Damson
503 Early Purple
504 German Prune

Plums

505 Green Gage
506 Imperial Gage
507 Sugar
508 Wild Goose
509 Yellow Egg
510 Yellow Gage

Cherries

551 Black Tartarian
552 Early Purple
553 Early Richmond
554 Florence
555 Governor Wood
556 Late Duke
557 May Duke
558 Rockport
559 Lullen

Chestnuts

602 Paragon

Other Nuts

551 White Walnut (Hickory)

TABLE 3

Characteristics of the Apples Grown in the Orchards
Sources: American Pomological Society, 1899 and 1909, *Catalogue of Fruits*, and Beach, S. A., 1905, *The Apples of New York*.

Keys to Apple Chart
(from American Pomological Society 1899)

Size: 1 Very Small
2-3 Small
3-4 Small-Medium
5-6 Medium
7-8 Medium to Large
8-9 Large
10 Very Large

Form: c conical, i irregular, o oblate, ob oblong, ov ovate, r round

Color: d dark, g green, r red, ru russet, s striped, w white, y yellow

Flavor: a acid, m mild, s sweet, sa subacid, v very

Quality: 1 Very Poor
2-3 Poor
3-4 Poor-Good
5-6 Good to Very Good
7-8 Very Good
8-9 Very Good to Best
10 Best

Season: e early, m medium, l late, v very

Use: c cider, d dessert, k kitchen, m market

Suitability as to the District of Boone, North Carolina:

* Successful
** Highly Successful
\+ Promising
\- Tested, Undesirable
--- Not Reported on

VARIETY	SIZE	FORM	COLOR	FLAVOR	QUALITY	SEASON	USE	ORIGIN	SUITABILITY
Albemarle Pippin	7-8	ro	yr	a	9-10	vl	dkm	NY	**
Virginia Beauty	7-8	rc	gyrs	sa	7-8	l	d	VA	+
York Imperial	7-8	oi	yrs	m	6-7	l	dm	PA	**
Mother	5-6	rc	yr	m	8-9	ml	d	MASS	*
North Carolina Beauty									
Gragg									
Spitzen-berg (Esopus)	6-8	obc	r	m	10	l	d	NY	*
Baldwin	7-8	rpc	yr	m	5-6	l	km	MASS	*
Royal Limber Twig									

VARIETY	SIZE	FORM	COLOR	FLAVOR	QUALITY	SEASON	USE	ORIGIN	SUITABILITY
Arkansas Mammoth Black	7-8	ro	yr	m	7-8	l	km	ARK	**
Jonathan	5-6	rc	yr	m	8-9	l	dkm	NY	**
Red Limber Twig	6-7	roc	gyr	m	3-6	vl	m	NC	*
Ben Davis	6-9	rov	yrs	m	4-5	l	m	KY	**
Wine Sap	5-6	rob	yr	a	7-8	vl	dkm	NJ	**
Magnum Bonum	5-6	o	yr	m	6	ml	d	NC	**
Missouri Pippin	5-6	rc	yrs	m	3-4	l	m	MO	*
Arkansas Beauty	7-8	rc	gyrs	msa	4-5			ARK	
Baltimore Red (syn. Ben Davis?)									
Biggerstaff									
Buckingham	6-8	oc	gyr	m	7-8	l	km	VA	**

VARIETY	SIZE	FORM	COLOR	FLAVOR	QUALITY	SEASON	USE	ORIGIN	SUITABILITY
Bullock	3-4	oc	yru	m	8-9	l	d	NJ	*
Camac Sweet	5-6	rc	gy	sa	4-5	l	k	NC	*
Early Harvest	5-6	ro	yw	ma	9	ve	dk	Am.	**
Early Joe	3-4	oc	yrs	m	8-9	e	d	NY	*
English Golden Russet	4-6	roc	yru	sa	5-6	vl	cmkd	Eng.	*
Gano	7-8	oi	yrs	m	5-6	ml	m	TN	**
Gloria Mundi	10	rc	gy	m	3-4	m	k	Am.	
Golden Russet American (syn - Bullock)									
Gravenstein	8-9	oi	yr	ma	8-9	em	dkm	Ger.	**
Grimes Golden	5-6	roc	y	m	9-10	l	d	VA	**
Horse	7-8	r	yrs	m	4-5	e	mc	NC	**

VARIETY	SIZE	FORM	COLOR	FLAVOR	QUALITY	SEASON	USE	ORIGIN	SUITABILITY
Hubbardston Nonsuch	7-8	rov	yrs	m	8-9	l	dm	MASS	*
Keiver Seedling									
Lady	1-2	o	yr	m	6-7	l	dm	Fr.	*
Lane									
Maidenblush	5-6	o	yr	m	5-6	e	km	NJ	**
Maryland									
May									
North Carolina Keeper									
Northern Spy	8-9	roc	yrs	m	8-9	ml	dkm	NY	*
Pomme Grilot									
Pride of North Carolina									

VARIETY	SIZE	FORM	COLOR	FLAVOR	QUALITY	SEASON	USE	ORIGIN	SUITABILITY
Rawles Janet	5-6	oc	yrs	m	6-7	vl	m	Fr.	**
Rasberry	3-4	obi	r	---	6-7	ml	km	Rus.	--
Red Astrachan	7-8	rc	rgy	a	5-6	e	km	Rus.	**
Red June	3-4	ovc	rs	m	6-7	ve	dm	NC	**
Red Siberian Crab	4	rob	r	m	3-4	e	k	Fr.	*
Romanite	3-4	rc	yr	m	6-7	l	d	Am.?	**
Rome Beauty									
Rosbury Russett	5-6	ro	yru	m	6-7	l	km	MASS	*
Smith Cider	6-7	roc	yrs	m	5-6	l	km	PA	*
Smokehouse	6-7	ro	yr	m	6-7	ml	k	PA	*

VARIETY	SIZE	FORM	COLOR	FLAVOR	QUALITY	SEASON	USE	ORIGIN	SUITABILITY
South Fork Seedling									
Star									
Summer Pearmain	5-6	rc	rru	m	9-10	em	d	Am.	*
Summer Queen	6-7	rc	yrs	a	5-6	e	km	Am.	*
Summer Rose	4-5	r	yrs	m	6-7	ve	d	NJ	*
Sweet Pippin (?) (Syn. Moore Sweet)	5-6	ro	r	s	5-6	l	k	Am.	*
Tolman Sweet	5-6	ro	y	s	6-7	l	km	RI	*
Transcendent Crab	7-8	r	yr	a	5-6	e	km	Am.	**
Twenty Ounce	9-10	r	yrs	m	6-7	ml	km	CONN	*
Vandeveer	5-6	o	yrs	m	5-6	ml	km	DE	*

VARIETY	SIZE	FORM	COLOR	FLAVOR	QUALITY	SEASON	USE	ORIGIN	SUITABILITY
Wagener	6-7	ro	yrs	m	7-8	l	dm	NY	*
Wealthy	6-7	ro	yrs	m	6-7	m	dkm	MINN	**
Winter Joe									
Yellow Bellefleur	8-9	obc	yr	a	8-9	l	dkm	NJ	*
Yellow Siberian Crab	5	r	y	a	3-4	e	km	Am.	*
Yellow Transparent	5-6	rc	wy	a	5-6	e	km	Rus.	**
Bismark	10	o	grs	ma	4-5	l	km	For.	+
Canada Red (Syn. Red Canada)	5-6	oc	yr	m	8-9	l	dm	Am.	*
Primate	5-6	rc	yr	m	9	e	d	NY	*
Sherwood Scotch Red									
Yellow June	3-4	ro	y	a	5-6	e	dk	Am.	*

TABLE 4

Fertilizer Mixture Used in 1900
Source: F. L. Mulford's diary, p. 49 (Cone docs. item 1)

600 lbs.	Dissolved So. Ca. rock
200 lbs.	Muriate of Potash
100 lbs.	Raw Ground Bone
50 lbs.	Nitrate of Soda

TABLE 5

Spraying Mixtures Used in the Orchards in 1900
Source: F. L. Mulford's diary, p. 47 (Cone docs. item 1)

Standard Bordeaux
4 lbs. sulphate of copper
6 lbs. lime
50 gals. water

Tobacco Mixture
Ground tobacco and hot water, allowed to steep and then dilute till the color of strong-tea

Kerosene Emulsion
Boiling water 1 gal.
Soap dissolved in above 1/2 lb.
Kerosene churned with above two 2 gals.
Use 1/2 pt. to sprayer of water, about 3 gals.

Copper Carbonate
1 lb. sal soda dissolved in hot water
3/4 lb. copper sulphate ditto.
When both cooled, mixed liquid siphoned next two days then washed, strained and used or dried.

TABLE 6

Grass Seed Mixtures used in 1900
Source: F. L. Mulford's diary, pp. 31 and 33 (Cone docs. item 1)

Woods Mixture 1898-9	
Red Fescue	12 lbs. per acre
Red Top	6 lbs. per acre
Kentucky Blue Grass	6 lbs. per acre
Timothy	6 lbs. per acre
White Clover	1.5 lbs. per acre
Orchard Grass	7.5 lbs. per acre
	39 lbs. per acre

Mowing Mixture 1900	
Timothy	12 lbs. per acre
Red Top	6 lbs. per acre
Red Clover	12 lbs. per acre
	30 lbs. per acre

Pasture Mixture 1900	
Red Fescue	8 lbs. per acre
Sheep Fescue	8 lbs. per acre
Kentucky Blue Grass	8 lbs. per acre
Red Top	8 lbs. per acre
Orchard Grass	8 lbs. per acre
	40 lbs. per acre

Woodland Mixture 1900	
Festuca rubra/Red Fescue	8 lbs. per acre
Dactylis glomerata/Orchard Grass	8 lbs. per acre
Poa nemoralis/Wood Meadow	4 lbs. per acre
Festuca duriuscula/Hard Fescue	4 lbs. per acre
Poa trivialis	8 lbs. per acre
Cynosurus cristatus/Crested dogstail	4 lbs. per acre
	36 lbs. per acre

Roadside Mixture	
Poa compressa	14 lbs.
Bromus inermis	14 lbs.
Lespedeza striata	10 lbs.

Cost of Above Mixtures	$1900.00 per acre
Woods Mixture	4.44 per acre
Mowing Mixture	1.71 per acre
Pasture Mixture	5.20 per acre
Roadside Mixture	5.05 per acre

TABLE 7

Fruits and Vegetables in the Terraced Garden in 1900
Source: F. L. Mulford's diary, pp. 37 and 39 (Cone docs. item 1)

2 rows red raspberries
2 rows yellow raspberries
Summer stuff
  potatoes, Early Rose
Strawberries
  Darling
  Nick Ohmer
  Sample
  Excelsior
  Brandy Wine
  New York
  Burnett
  Parker Earle
  Cyclone
Rhubarb
Asparagus
Crosby's Egyptian Beet Salsify
Long Orange Carrot
Hollow Crown Parsnip
Heroine Pea
Gradus Pea
White Silver Skin Onion
White Globe Danvers Onion
Tennis Ball Lettuce
Radishes
    Scarlet Globe
    Smooth White
    Chartier
    French Breakfast
Kendall's Eastern Giant Corn
Stablers (?)
Sugar Peas
Refugee Wax Beans
Golden Wax Beans
Heroine Peas
Stringless Green Pod Beans
Brussels Sprouts
Cauliflower
Cabbage
Kohl Rabi
Beets
Spinach
Collards

TABLE 8

Contents of the Hotbed March 1900
Source: F. L. Mulford's diary, pp. 26, 28, and 30 (Cone docs. item 1).

Row		
	1	Radish - Scarlet Globe
	2	Radish - Scarlet Globe
	3	Lettuce - Curled Simpson
	4	Radish - Chartier
	5	Lettuce - Boston Market
	6	Lettuce - Tennis Ball
	7	Tomato - New Queen
	8	Pepper - Golden Queen
	8 1/2	Pepper - Ruby King
	9	Parsley - French Monitor
	10	Brussels Sprouts - Dwarf year old Scotch
	10 1/2	Brussels Sprouts - Half dwarf Paris Market
	11	Endive - Ever White Curled
	11 1/2	Tomato - Small Yellow
	12	Tomato - The Show
	13	Tomato - Early Acme
	14	Tomato - Early Acme
	15	Tomato - Ignotum
	16	Tomato - Ignotum
	17	Eggplant - New Jersey Large Purple
	18	Eggplant - New Jersey Large Purple
	19	Okra - Green Prolific
	20	Tomato - New Stout
	21	Tomato - New Stout
	22	Celery - Golden Self Blanching
	23	Celery - Golden Self Blanching
	24	Cauliflower - Early Alabaster
	25	Kohl Rabi
	25 1/2	Celeriac - Prague
	26	Sage
	26 1/2	Thyme
	27	Sweet Marjoram
	27 1/2	Summer Savory
	28	Cabbage - Extra Early J&S
	29	Cabbage - Extra Early J&S
	30	Onion - Mammoth Prize Taker
	31	Onion - Mammoth Prize Taker
	32	Beet - Egyptian
	33	Beet - Egyptian
	34	Spinach
	35	Spinach
	36	Radish - Scarlet Globe

TABLE 9

Rarity of the Apple Cultivars Grown in the Moses H. Cone Orchards
Sources: Fogle, H. W. and H. F. Winters. *North American and European Fruit and Tree Nut Germplasm Resources Inventory*, 1981. Fisher, E., July 1, 1989, personal communication.

	CULTIVAR	NO. OF SOURCES LISTED GERMPLASM INVENTORY	FISHER COLLECTION
1	Albemarle Pippin	7	Yes
2	Virginia Beauty	1	Yes
3	York Imperial	14	Yes
4	Mother	10	Yes
5	North Carolina Beauty	0	No
6	Gragg	0	(Obtained in 1989)
7	Spitzenburg (Esopus)	8	Yes
8	Baldwin	11	Yes
9	Royal Limbertwig	1	Yes
10	Arkansas Mammoth Black	9	Yes
11	Jonathan	4	Yes
12	Red Limbertwig	1	Yes
13	Ben Davis	6	Yes
14	Wine Sap	5	Yes
15	Magnum Bonum	0	Yes
16	Missouri Pippin	2	No

	CULTIVAR	NO. OF SOURCES LISTED GERMPLASM INVENTORY	FISHER COLLECTION
17	Arkansas Beauty	0	No
18	Baltimore Red (syn. Ben Davis)	0	Yes
19	Biggerstaff	0	No
20	Buckingham	1	Yes
21	Bullock (syn. Am. Golden Russet)	3	Yes
22	Camac Sweet	0	No
23	Early Harvest	12	Yes
24	Early Joe	7	Yes
25	English Golden Russet	1	Yes
26	Gano (syn. Black Ben Davis)	5	Yes
27	Gloria Mundi	4	Yes
28	Golden Russet (Amer.)	3	Yes
29	Gravenstein	13	Yes
30	Grimes Golden	7	Yes
31	Horse	1	Yes
32	Hubbardston Nonsuch	1	Yes
33	Keiver Seedling	0	No
34	Lady	3	Yes
35	Lane	0	No
36	Maiden Blush	7	Yes
37	Maryland	0	No
38	May	1	Yes

	CULTIVAR	NO. OF SOURCES LISTED GERMPLASM INVENTORY	FISHER COLLECTION
39	North Carolina Keeper	0	No
40	Northern Spy	9	Yes
41	Pomme Grilot	0	No
42	Pride of North Carolina	0	No
43	Rawles Janet (syn. Ralls Janet)	1	Yes
44	Raspberry	0	Yes
45	Red Astrachan	7	Yes
46	Red June	2	Yes
47	Red Siberian Crab	1	Yes
48	Romanite	1	Yes
49	Rome Beauty	5	Yes
50	Roxbury Russet	8	Yes
51	Smith Cider	4	Yes
52	Smokehouse	9	Yes
53	South Fork Seedling	0	No
54	Star	0	No
55	Summer Permain	2	Yes
56	Summer Queen (syn. Queen)	1	Yes
57	Summer Rose	6	Yes
58	Sweet Pippin	0	Yes
59	Tolman Sweet	7	Yes
60	Transcendant Crab	1	Yes
61	Twenty Ounce	9	Yes
62	Vandeveer	3	Yes

	CULTIVAR	NO. OF SOURCES LISTED GERMPLASM INVENTORY	FISHER COLLECTION
63	Wagener	6	Yes
64	Wealthy	12	Yes
65	Winter Joe	0	Yes
66	Yellow Bellefleur	8	Yes
67	Yellow Siberian Crab	1	Yes
68	Yellow Transparent	8	Yes
69	Bismark	0	No
70	Canada Red	1	Yes
71	Primate	6	Yes
72	Sherwood	0	Yes
73	Scotch Red	0	No
74	Yellow June	0	No

References

References are listed in the following order: documentary materials, surveys and drawings, aerial photographs, interviews, unpublished reports, and published materials.

Documentary Materials in the Moses H. Cone Collection of the Blue Ridge Parkway, Asheville, North Carolina:

Item 1: Mulford, F. L. Records and Notes on Farms of M. H. Cone, November 1, 1899 to October 1, 1900.

Item 2: Mulford, F. L. Orchards of Moses H. Cone, Blowing Rock, North Carolina, October 1900.

Item 3: Blowing Rock, Orchard and Stock Farm, Moses H. Cone, Account Book, November 1899 to October 15, 1900.

Item 4: Time Book, March 1910 to April 1912.

Item 7: Invoice Book: Hardware and Building Materials 1899 to 1901.

Item 9: Ledgers of Wood Cutting on the Estate 1926 to 1935 and 1936 to 1941.

Item 10: Daybook--Accounts Paid, 1904 to 1908, kept by G. H. Duncan and E. G. Underdown.

Item 12: Invoice book of Receipts for Farm Purchases, November 1899 to January 1904.

Item 32: Payroll of the Flat Top Manor Orchards, October 15, 1909 to August 15, 1947.

Item 33: *The Rural New Yorker*, 1898.

Item 36: Framed Diploma, National Apple Show, First Prize, December 7 to 12, 1908.

Item 37: Bronze Medal for M. H. Cone Apples, St. Louis Exposition, 1904.

Item 38: Silver Medal for Apples of M. H. Cone, Paris Exposition, 1900.

Item 120 to 127: Letters from Bertha Cone to E. G. Underdown, October 7, 1913 to November 20, 1914.

Item 128: Accordian file of Farm Receipts and Correspondence, 1913 to 1917.

Item 129: Alphabetical file box of Paid Bills and Miscellaneous Correspondence, 1935 to 1937.

Item 130: Alphabetical file box of Paid Bills and Miscellaneous Correspondence 1899 to 1930.

Item 132: Alphabetical file box of Paid Bills and General Farm Correspondence 1906 to 1912.

Indenture, May 30, 1911, between Bertha L. Cone . . . and the Moses H. Cone Memorial Hospital, Inc.

Indenture, January 21, 1949, between the Moses H. Cone Memorial Hospital . . . and the United States of America.

Surveys and Drawings

Potter, W. G., 1909. Map No. 1 of the Moses H. Cone Estate, showing the Watauga Co. Lands near Blowing Rock, North Carolina. Scale 1 inch to 400 feet (in the collection of the Blue Ridge Parkway).

Blue Ridge Parkway, Drawings of the Moses H. Cone Memorial Park:

No. 2050 General Development--part of the Master Plan Scale 1" to 1600' and 1" to 200', 1948.

No. 2050A Developed Areas and Utilities Plan--part of the Master Plan. Scale 1" to 1600' and 1" to 200', 1952.

No. 2050B Developed Areas and Utilities Plan--part of the Master Plan. Scale 1" to 1000' and varies, 1952.

No. 2051 General Development (Proposed General Development--submitted in accordance with Mr. Herman Cone's Offer of February 18, 1948, to the U.S. Government). Scale 1" to 1000', 1948.

No. 2053 Parkway Land Use Map. Scale 1" to 660', 1950.

No. 2053A Parkway Land Use Map. Scale 1" to 660', 1950.

No. 2055 Topographic map for Parking Area (Manor House). Scale 1" to 50', 1951.

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Appendix One

"Orchards of Moses H. Cone, October 1900"
A Survey by F. L. Mulford (Cone docs., item 2)

Located in pocket.

APPENDIX TWO

Abbott, Stanley W., July 29, 1947
Memorandum Report for the Superintendent
Blue Ridge Parkway

United States
Department of the Interior
National Park Service

Blue Ridge Parkway
P.O. Box 1710
Roanoke, Virginia
July 29, 1947

MEMORANDUM REPORT for the Superintendent:

In accordance with your request Landscape Architect Abbuehl and the writer made a general investigation of the Moses H. Cone Estate near Blowing Rock during July 22, 23 and 24. There follows a discussion of these properties and their adaptability as a recreational area in the plan of the Blue Ridge Parkway.

I. Description of the Cone Property

This 3,600-acre property exemplifies the summer estate of the wealthy during the horse and carriage days in the southern mountains. Remarkably it has changed little since early in the century and has never been re-shaped to fit the motor car. Indeed, few autos have been permitted entrance to any part of the grounds.

There are many fine areas of natural beauty on the property and, by fifty miles of carriage road, these are accessible to the horseback rider and hiker in an attractive park-like way. There is also roughly a quarter of the acreage in hay meadow, pasture and orchard. All are well kept and provide an interest and a beauty of a man-made kind.

Outstanding points of elevation are forested Flat Top Mountain (4,568 feet) where from a tower broad views may be had of the surrounding Grandfather country; and Rich Mountain (4,375 feet) from whose tonsured dome views open across boulder-strewn pastures to the wooded mountains. Then there are the hollows of the estate with clear-running streams, deep woods, rhododendron and laurel thickets.

The Cone House, related service buildings and stables are a substantial plant in an exceptionally good state of repair. The quasi-colonial house is perhaps not a best example of its architectural period. For one reason, it seems ostentatious in its generally naturalistic setting, yet it is certainly interesting that such a building should have been accomplished in a then remote location by labor of many men and many horses. In its well-keptness, in the proximity of its stables and pastures, and in the constant sight along the roads of equestrians and carriages out of public liveries in Blowing Rock, there persists about the house and grounds certain "horsy aromas" which are surely not a common experience. Not a national nor a state park of our acquaintance has this particular quality of "public horses" in a large environs of beauty.

The small upper pond, immediately under the Cone Manor House, and the larger Bass Lake are attractive features of the area, the latter beautiful especially for large areas of native American water lilies. Both are artificial lakes of sound construction.

The attached map shows the room arrangement of the house. Rooms are of moderate scale and fine woodwork of colonial detail. Nearly all of the rooms contain fireplaces. Floors are hardwood and painted. Lighting is by gas manufactured on the place. The kitchen is commodious but in need of modernization.

II. Discussion of Possible Park Uses

A. General Character

We are of the opinion that the "horsy" character of the Cone properties should be perpetuated as the keynote of any park development. The splendid system of trails would require little save continued maintenance and that can be much simplified from present practice. At the present time two or three sizeable stables in the town of Blowing Rock provide horses and carriages for hire and the livery business is distinctly a "going" thing. This should be recognized and permitted to continue if the estate becomes a park. In addition thereto, and perhaps by preferential bid for the concession by the going stables of Blowing Rock, a center of horseback riding should be developed on the Blue Ridge Parkway proper at some point within the estate.

B. The Lakes

A second type of recreation which must be considered is that of opening one of the lakes to swimming. The trustees of the estate, so we understand, have already responded to this demand of the summer residents (5,000 or more) and will open the larger Bass Lake to swimming this summer. The Bass Lake, particularly beautiful for large areas of water lilies, could easily be damaged by swimmers and this quality of the lake would certainly be short-lived if boating were permitted. The writers are strongly of the opinion that no active recreation should be permitted in the Bass Lake, that it should be kept as a beauty spot to be visited afoot or horseback. Its shores, now rather "manicured," should be naturalized in their landscape treatment. The upper lake or pond is sufficiently large to accommodate a goodly number of swimmers though no boating. Less scenic in its quality, it could reasonably be sacrificed to the development of a grass and sand beach and appropriate bath houses. Such a development could be made accessible by motor car from the Parkway to parking areas just above the pond.

C. The Trails

The natural beauty of the estate properties will mostly be appreciated, as we foresee it, from the trails, a foot, a-carriage or horseback, as there are roads leading to most of the high vantage points and into many of the beautiful stream valleys. However, as not all Parkway visitors can walk or ride horseback, the development of a picnic area in an attractive part of the estate should be considered. The Flat Top Creek section would provide one such spot and is of such topography as to permit development without undue damage to the woodlands which are of a deep and damp character such as few of the Parkway's recreational areas afford. There would undoubtedly develop "local use" of these picnic areas, but it might be proportionately less because of the outdoor or summer character of many places in Blowing Rock. Indeed, the proximity of the town and its neon lights may be a long-sought foil to out-of-character use of Parkway picnic areas.

D. Tracts

The Fullenweider tract and the China Creek section of the estate, lying under Raven Rocks and generally to the south of US-221, can be seen at once to be a somewhat separated section of the estate, divided by the Yonahlossee Trail from the parent tracts. Wild in character though not extensive in size, these tracts would afford a place of interest to equestrians but, because separated, this might lead to problems of administration. It is suggested, therefore, that these separated tracts had better become an area for foot trails alone for the

benefit of the fisherman. In part these particular lands are contiguous to U.S. Forest Service lands and consideration should be given perhaps to an arrangement with the trustees of the estate by which these particular lands might be administered by the Forest Service. It is not the intention to more than suggest such a plan at this time. Thorough investigation should precede any such proposition.

E. The Cone House

The Cone house is unquestionably a part of the horsy character of Flat Top Manor. Most of the major developed features of the estate are related to it. As a possible center for public activities in the park it represents an existing value which is obvious. It also represents a continuing and sizable requirement for maintenance. If unoccupied and unheated for one winter it is quite likely that there would be quick signs of deterioration. To maintain and heat it the year around for occupancy as a local administrative headquarters or for personnel residence appears to be quite impracticable. Alterations so that it might be suitable for these purposes would be difficult and costly. Its readiness to serve as an eating place and a center of horse and carriage activities in the park is remarkable. Modernization of the quite large kitchen for serving food to the public in two or more of the rooms on the ground floor and on the porches would not require a large outlay. The remainder of the house, while it would be possible to reserve rooms for guests, would likely best to be utilized for concessionaire personnel. The development of parking areas for motor cars on one side of the residence and entrance from paddocks for horseback riders to a tap-room on the other should enable a preservation of much of the character of the place and yet provide a profitable concession. This is especially true if the concessionaire would operate such a part of the farm as would supply the livery stables and the dining tables with crops and dairy products. The Government would thus be relieved of maintenance of these features and yet this quality of the picture would be preserved.

Should the above proposal not meet with favor, the writers would recommend Flat Top Manor be razed, together with certain of its outbuildings. It is likely that the buildings have sufficient salvage value that they could be advertised for sale and torn down without cost to the Government.

As to the orchards, a sufficient part of them might be kept up by the concessionaire so that baskets of apples could be sold as the principal souvenir to be purchased in a gift room in the Cone Manor House. The ice house and cellar would make for good keeping.

Furnishing the public rooms of the house would require somewhat more than the ordinary outlay as the austerity of the house interior would require the warmth of a few large hangings and an occasional print or a piece of furniture auxiliary to the usual equipment of a restaurant.

F. The Fields and Orchards

Maintenance by the Government of that part of the estate in which the concessionaire would not be interested could be managed quite reasonably, it is believed. Flat Top Manor has been maintained hand-fashion and the employment of modern methods of park maintenance should greatly reduce the man-power required. More important than that, there should be a considerable change in the character of the maintenance. Except in the vicinity of the manor house, grass areas should be maintained as meadows in the usual Parkway fashion. The largest part of the orchards should be eliminated and the hillsides naturalistically reforested or left to regenerate. Estate Manager Moody estimated that nearly half of the cost of estate maintenance in the past went into the pruning, spraying, and mowing by hand of the hillside orchards.

The maintenance of a number of outlying pastures and fields within the estate has been carried on by tenant families of which there are 27 in all. A number of these open areas might fittingly be maintained within the park (1) by leasing under existing Parkway authorities, (2) by Parkway forces in order to provide needed hay mulch for landscaping through the years immediately ahead, or (3) by sub-lease of the concessionaire. A troublesome part of this problem is that of re-settling the tenant families. We understand that this will not be an obligation, real or implied, of the Federal Government under the terms of the proposed transfer, yet for benefit of neighbor relations it is believed that thought should be given to some arrangement for life occupancy by those families whose records are found worthy and whose services could be used in the upkeep of the park or that district of the Parkway.

G. Parkway Location

The original location for Section 2-G of the Parkway where it passed through the Cone properties was based upon the assumption that the properties should be avoided by the Parkway location so that the estate would be left intact for then-planned use as a state hospital or sanitorium. Should the property come into Government ownership a different relationship with the Parkway should exist. The plan attached hereto suggests a tentative Parkway line subject to cooperative investigation with the PRA. The new proposal for location has these advantages. Penley Branch and Flat Top Branch provide beautiful pine and hemlock wood and sufficient flat land in which to develop picnic areas for motorists. They would not be practicably available from the old line unless lengthy roads were built. By locating the Parkway within the boundaries of the Cone Estate in this vicinity, four or five properties between US-221 and the Flat Top road would be avoided and acquisition costs lessened for the State. Since Flat Top road, a public road, is avoided, cost of a grade separation structure would be saved. The sides of Flat Top Mountain are heavily wooded and heavy grading would have resulted from construction of the original Parkway location across it. Some scar might have developed and this will be avoided by the new line. The construction of a short spur road from the new suggested Parkway line would tap the upper lake for motor car parking and swimming. An approach to the Cone house by means of existing carriage roads, probably on a loop basis, would avoid any large amount of new motor road construction. Early and more careful study of this possible Parkway location is needed. There should be close collaboration with the PRA as bridle path bridges over or under the Parkway and other features must be studied for proper relation of the Parkway to the proposed recreational development. We believe that if a plan can be quickly agreed upon and the Cone Estate soon acquired by the Service that this portion of the Parkway should be lifted in the PCP priority together with a minimum of recreational development.

III. General Recommendations

Under the conditions outlined above, it is believed that the Moses H. Cone Estate near Blowing Rock would make an appropriate recreational area on the Blue Ridge Parkway. If this general character of development is acceptable to the Service, we would recommend acceptance of the estate for Parkway purposes.

The writers believe that the above recommendation would meet with favor in Blowing Rock in its entirety. Flat Top Manor is peculiarly part of the Blowing Rock tradition as this resort was founded during the horse and carriage days. It is quite likely that many summer residents of Blowing Rock will watch critically what happens to the estate should it become a public park. There would appear to be no arrangement of the above proposal that could not be explained as good taste and good

park practice. One angle of the proposition would, however, appear to require special handling, namely, the introduction of a concessionaire into a Parkway area in close geographic competition with the going tourist enterprises at Blowing Rock. Even though the operation were kept within the limits outlined above, it is not in accordance with announced policy of the Parkway whereby the Service has said that it would not set up a concession near areas where private enterprise is meeting the demand. Yet we are sure that there would develop still more disappointment if some public use were not made of the Cone house.

We suggest that authority be requested of the Department to invite bids on this special concession so that Blowing Rock operators would have a chance to bid. This opportunity to bid for it, plus an explanation by the Service of how much a proper development of the park would mean to Blowing Rock, should in our opinion satisfy this situation.

Stanley W. Abbott,
Resident Landscape Architect

☆ U.S. GOVERNMENT PRINTING OFFICE: 1993—638-189

APPENDIX ONE

"The Orchards of Moses H. Cone, October 1900" was prepared by F. L. Mulford and consisted of a detailed survey of the orchards. It contains maps and inventories for each orchard. Because of the length and poor reproduction quality of the sixty-eight page document, only the title page and the first three pages of the document are provided to give the reader a sense of the work. The original document and a copy are available at Blue Ridge Parkway headquarters in Asheville, North Carolina.

ORCHARDS

OF

MOSES H. CONE.

BLOWING ROCK,

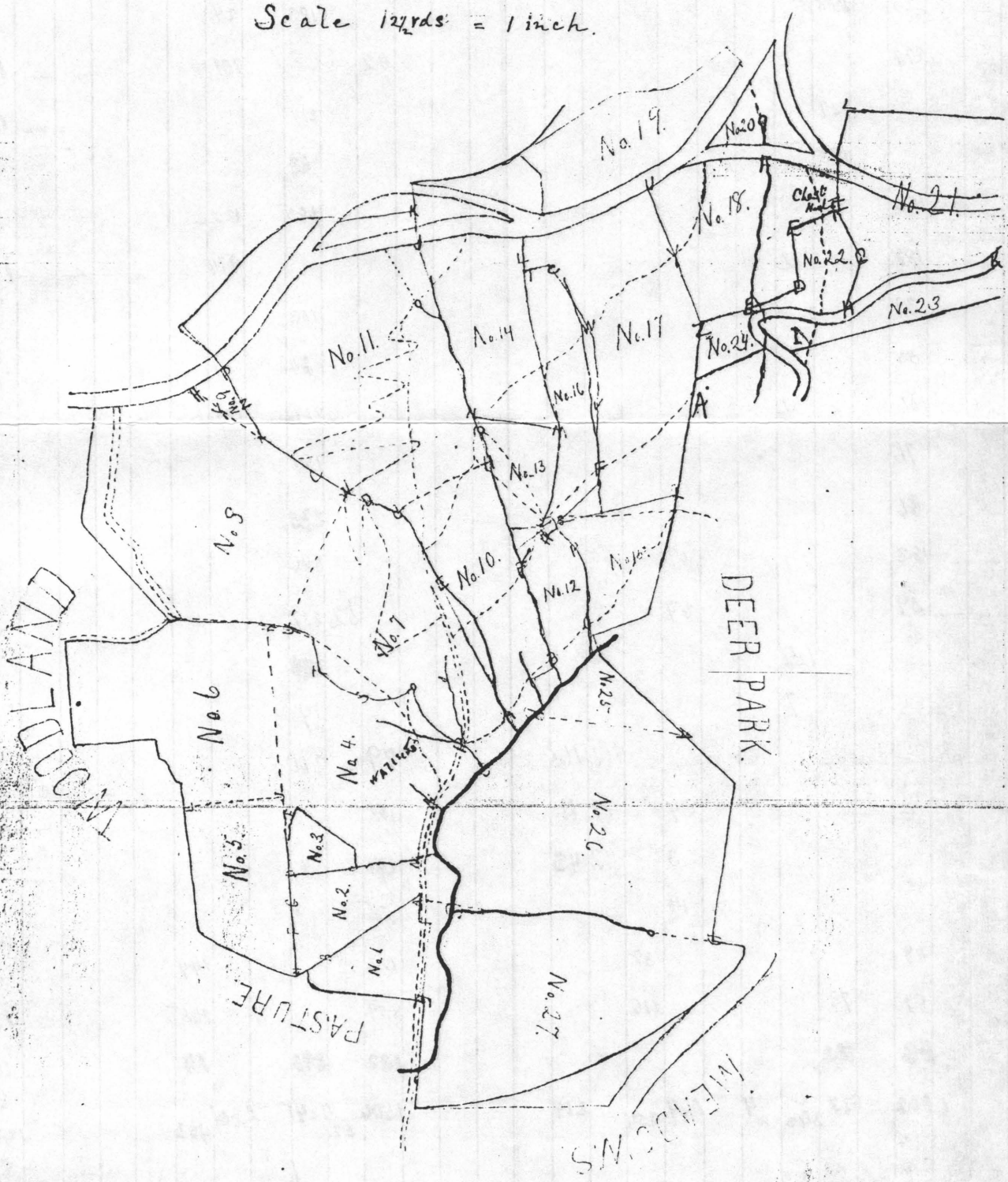
NO. CA.

OCT. 1900.

The varieties in these maps are indicated by numbers as found in the appropiate lists; roads by double dotted lines = = = = or in case of the main drive often by full double lines ═══; paths are single dotted lines .----. Numbers enclosed in a square [13] indicate a tree of an adjoining section of the map and included for convenience in locating the different sections. The capital letters are used to indicate the points where the different sections join, and as far as possible given the same position and slant on the different maps.

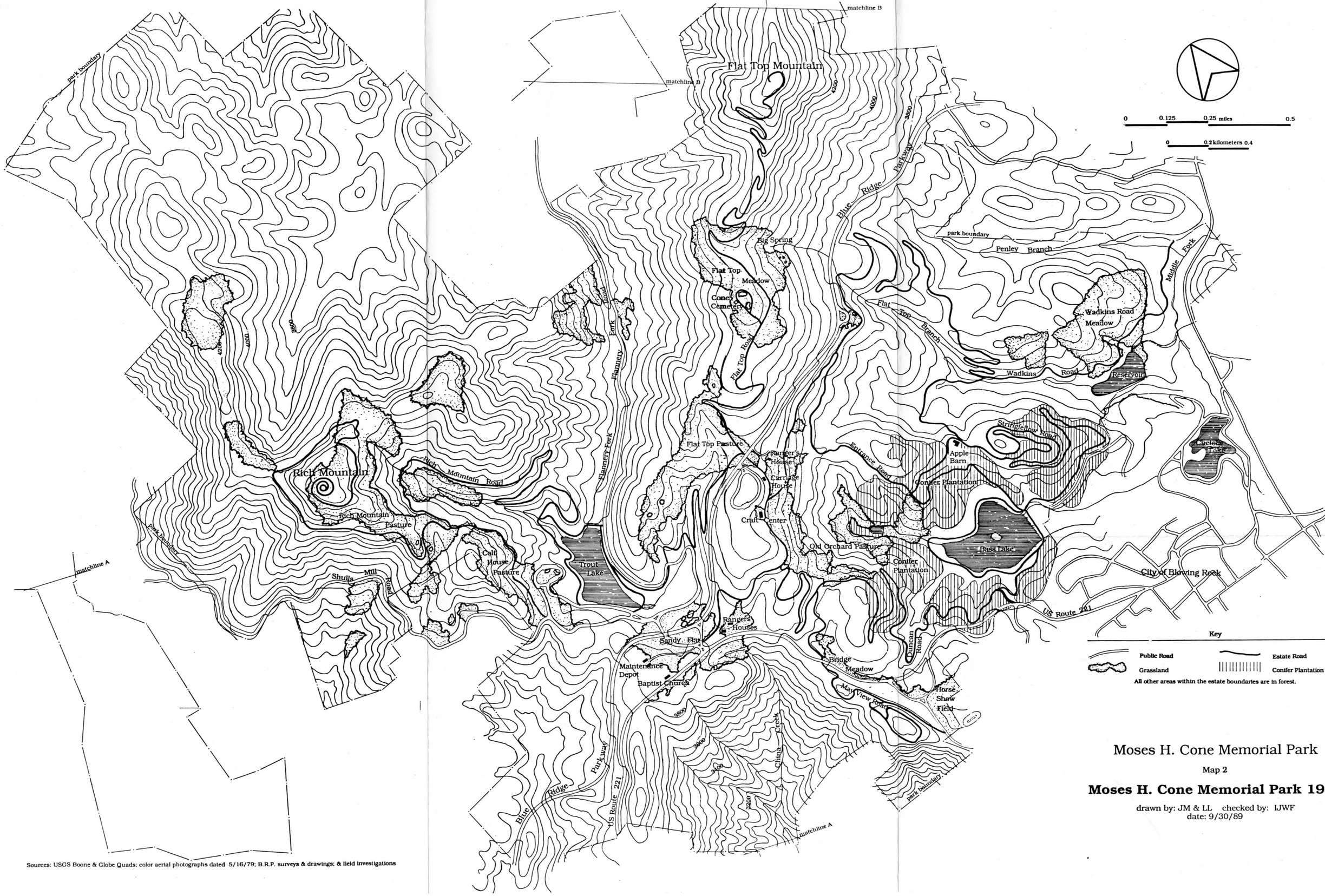
FLAT TOP ORCHARD

Scale 12½ rds = 1 inch.



Plat 1 of

	Allamuchy No 1.	Virginia Beach No 2.	Goodwin Lane No 3.	Quarters No 4	No Ca Barracks No 5	Camp No 6	Hospital No 7	Baldwin No 8	Stanley Oakland	Brigade Headquarters No 11	Artillery Park No 12	Jones Hill No 13	Artillery Park No 14	Ben Davis No 15	White S & C No 16	Brown No 17	Provincial Guard No 18	Provincial Staff No 20	Total
1	106															111			217
2	82															80			162
3	30															28			58
4	203		28											320		3			554
5	74															75			149
6	20		188											183		24			415
7	274											42				789			1025
8			324											814					1138
9			25											63					88
10	120													185		122			427
11	188			172	4											974			1338
12	39													103					142
13	68													74		37			180
14	106			42										219		144			511
15	76													191					267
16	86													223					309
17	183						49							686					918
18	39						64						52	237					392
19				122										124					246
20				7										14					21
21								165	165			79		210					484
22							34		11			105							150
23							3		43			141		4					191
24							14					35							49
25	49							38				113					144		344
26	89		79					216				859					265		1508
27	93		280									232		696			74		1073
	1962		877	343	4		164	254	219			1506	52	4241		2321	483		12326



Sources: USGS Boone & Globe Quads; color aerial photographs dated 5/16/79; B.R.P. surveys & drawings; & field investigations

Moses H. Cone Memorial Park

Map 2

Moses H. Cone Memorial Park 1980

drawn by: JM & LL checked by: lJWF
date: 9/30/89

Moses H. Cone Memorial Park

Map 5

The Cone Estate in 1909

drawn by: W. G. Potter, Civil Engineer
Greensboro, N.C.
date: 1909

Note: This copy is half the size of the original.



PKY-BR
MG-2064



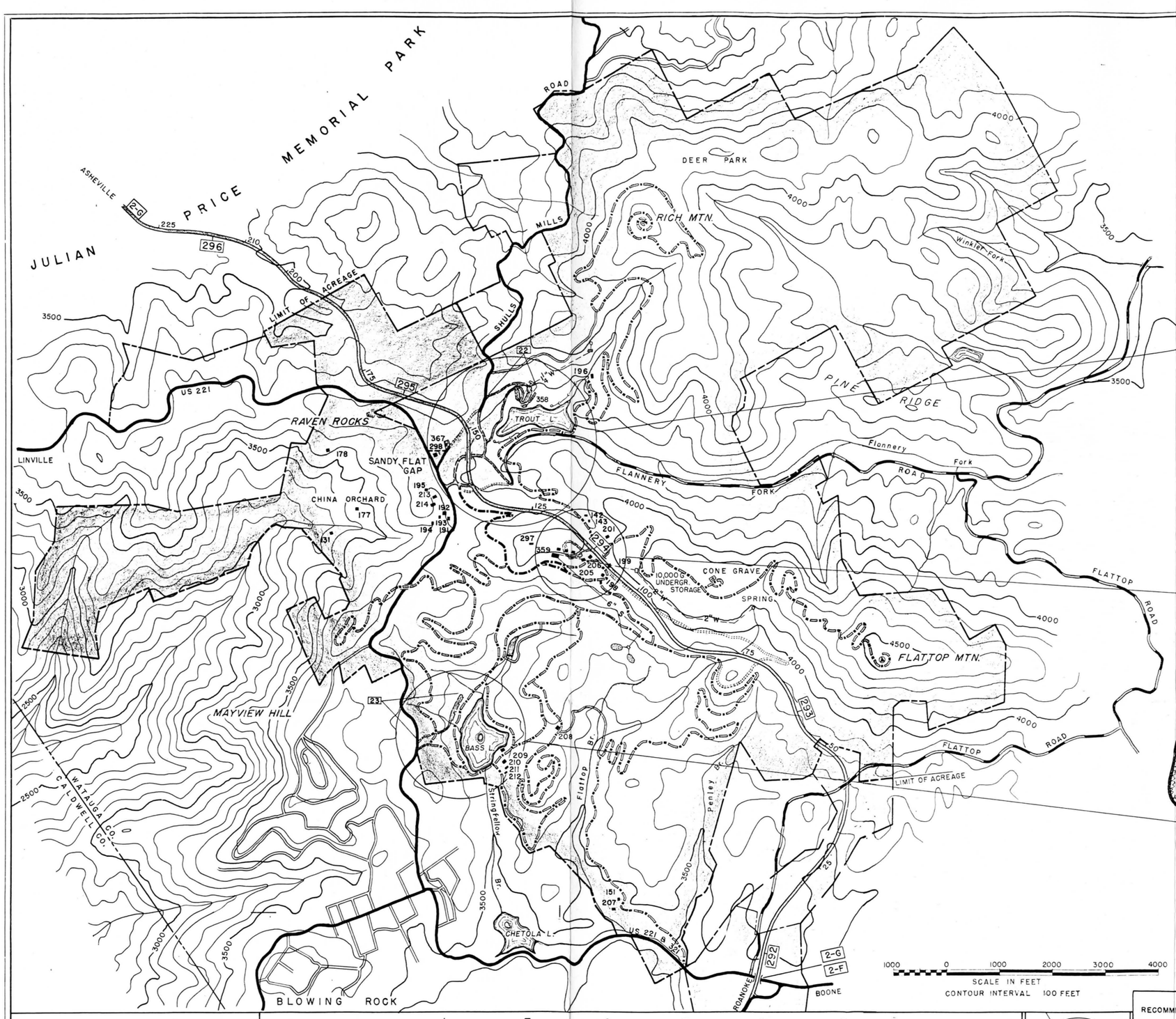
Moses H. Cone Memorial Park

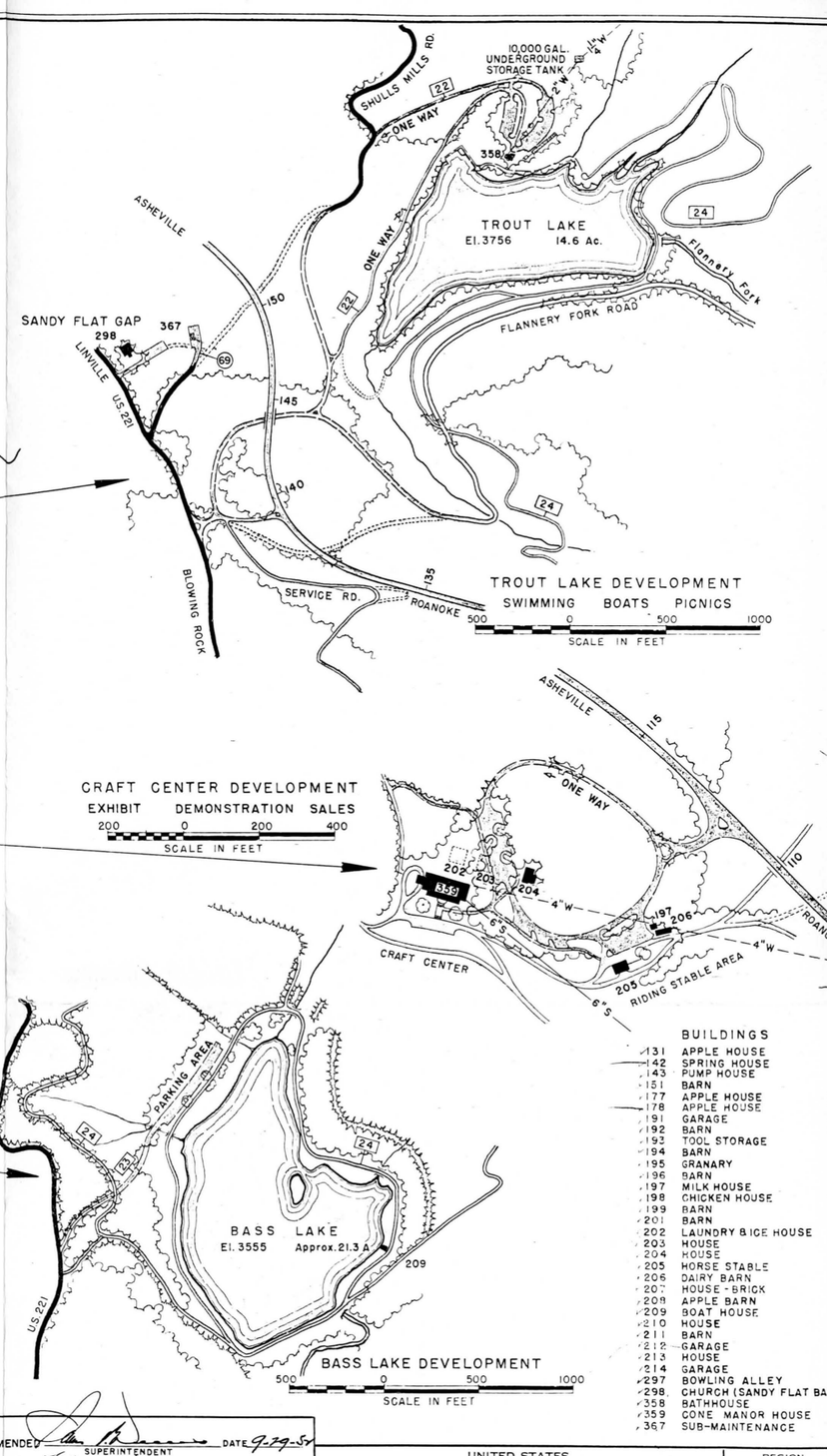
Map 6

The Cone Estate 1940

drawn by: JM & LL checked by: LJWF
date: 9/30/89

Sources: USGS Boone & Globe Quads; b & w aerial photographs dated 10/21/40; B.R.P. surveys & drawings; interviews & field investigations





BUILDINGS

131	APPLE HOUSE
142	SPRING HOUSE
143	PUMP HOUSE
151	BARN
177	APPLE HOUSE
178	APPLE HOUSE
191	GARAGE
192	BARN
193	TOOL STORAGE
194	BARN
195	GRANARY
196	BARN
197	MILK HOUSE
198	CHICKEN HOUSE
199	BARN
201	BARN
202	LAUNDRY & ICE HOUSE
203	HOUSE
204	HOUSE
205	HORSE STABLE
206	DAIRY BARN
207	HOUSE - BRICK
209	APPLE BARN
209	BOAT HOUSE
210	HOUSE
211	BARN
212	GARAGE
213	HOUSE
214	GARAGE
297	BOWLING ALLEY
298	CHURCH (SANDY FLAT BAPT
358	BATHHOUSE
359	CONE MANOR HOUSE
367	SUB-MAINTENANCE

LAND STATUS

COLOR	OWNERSHIP	ACREAGE
	NATIONAL PARK SERVICE	3516.0
	U.S. FOREST SERVICE	
	PRIVATE (Deed in preparation)	47.81
	TOTAL DESIGNATED AREA	3563.81

LEGEND

BOUNDARIES	EXISTING	PROPOSED
NATIONAL PARK SERVICE		
COUNTY		
PRIVATE		
TRAIL-FOOT		
PEDESTRIAN OVERLOOK		
BUILDINGS		
BUILDINGS TO BE OBLITERATED		

ROADS AND PARKING	PAVED	BASE SURFACED	IMPROVED	GRADED	OBLITERATE	PROPOSED
BLUE RIDGE PARKWAY						
MAJOR HWY. & DEV. AREA-2 WAY						
DEVELOPED AREA-1 WAY						
CARRIAGE ROAD 2640 MI. RT. 24						
PARKING AREA						
PARKING OVERLOOK						

RECOMMENDED _____ SUPERINTENDENT DATE 9-29-52

RECOMMENDED _____ ASSISTANT REGIONAL DIRECTOR DATE 10-14-52

RECOMMENDED _____ REGIONAL DIRECTOR DATE 10-15-52

RECOMMENDED _____ CHIEF OF DESIGN AND CONSTRUCTION DATE 1-17-53

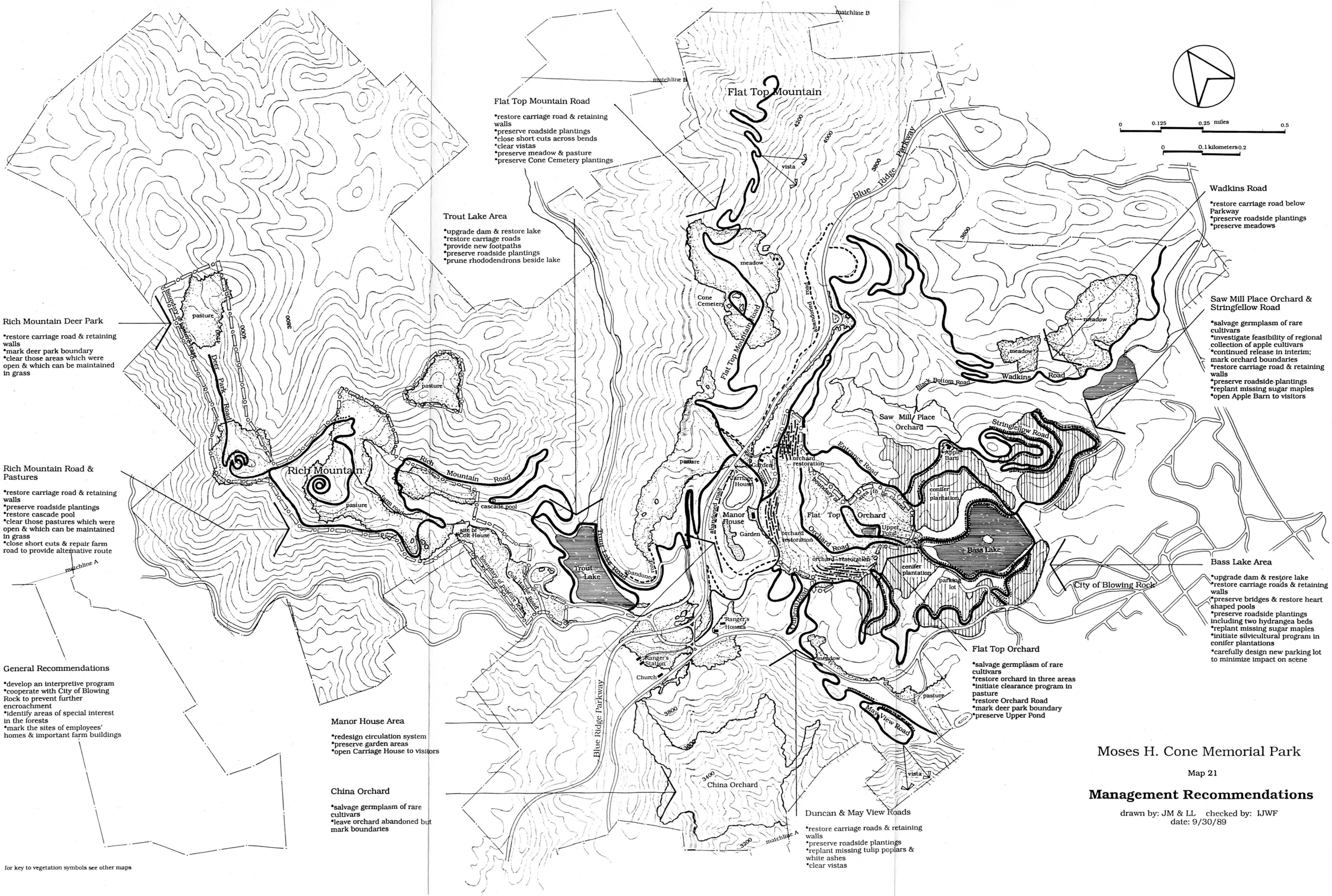
APPROVED: _____ DIRECTOR DATE 1/17/53

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DESIGN & CONSTRUCTION DIVISION
PREPARED BY
ROANOKE VIRGINIA
OFFICE

MOSES H. CONE MEMORIAL PARK

DEVELOPED AREAS & UTILITIES PLAN-PART OF THE MASTER PLAN
LOCATION
BLUE RIDGE PARKWAY
NAME OF AREA

REGION ONE
DATE SEPT. 1952
DRAWING NO. PKY-BR-MC 20508
SHEET 27



Moses H. Cone Memorial Park

Map 21

Management Recommendations

drawn by: JM & LL checked by: IJWF
date: 9/30/89