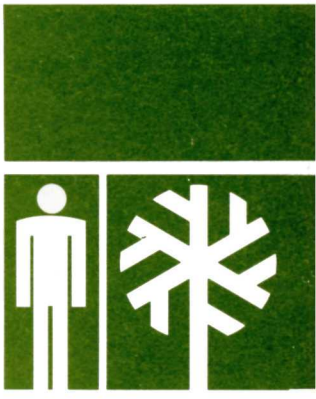
historic resource study

GREAT BASIN



NATIONAL PARK • NEVADA

BASIN AND RANGE:

A HISTORY OF GREAT BASIN NATIONAL PARK

NEVADA

by
Harlan D. Unrau

HISTORIC RESOURCE STUDY

U.S. Department of the Interior / National Park Service
1990

CONTENTS

PREFACE ix

INTRODUCTION xi
THE GREAT BASIN xi
GREAT BASIN NATIONAL PARK xiii
Geographic Location xiii
Purpose xiii
Significance xiii

CHAPTER ONE, OVERVIEW OF PREHISTORY OF GREAT BASIN NATIONAL PARK 1

CHAPTER TWO, DISCOVERY AND EARLY EXPLORATION OF THE GREAT BASIN: 1776 – 1850s 5
INTRODUCTION 5
SPANISH PENETRATION 5
FUR TRADERS AND TRAPPERS 8
WESTWARD TRAILS AND EXPANSION 13
Old Spanish Trail 13
Emigrant Trails to California 16
Early Exploration Surveys 18

CHAPTER THREE, MORMON EXPLORATION AND SETTLEMENT DURING THE 1850s 25

CHAPTER FOUR, EXPLORATION AND SURVEYS FOR TRANSPORTATION AND COMMUNICATION LINES ACROSS THE CENTRAL ROUTE OF THE GREAT BASIN DURING THE 1850s 35
INTRODUCTION 35
SURVEYS FOR A CENTRAL TRANSCONTINENTAL RAILROAD ROUTE: 1853-1854 35
TRAVERSE FOR A CENTRAL ROUTE TRAIL BY HOWARD R. EGAN: 1855 37
SURVEY FOR MILITARY WAGON ROAD ACROSS THE CENTRAL ROUTE BY JAMES H. SIMPSON: 1859 38
TRANSPORTATION AND COMMUNICATION LINES ACROSS THE CENTRAL ROUTE: 1859-1869 47

CHAPTER FIVE, SCIENTIFIC AND GOVERNMENT SURVEYS OF THE GREAT BASIN: 1860s – 1890s 51
INTRODUCTION 51
GEORGE M. WHEELER SURVEYS 51
A JOHN MUIR SURVEY OF THE SNAKE RANGE 59
U.S. COAST AND GEODETIC SURVEY TRIANGULATION STATION ON WHEELER PEAK 61

CHAPTER SIX, MINING DEVELOPMENT IN THE SOUTHERN SNAKE RANGE 75
INTRODUCTION 75
WHITE PINE MINING RUSH 77
SNAKE (BONITA) MINING DISTRICT 85
Location 85
History 85

SHOSHONE (MINERVA, LEXINGTON, TUNGSTEN) MINING DISTRICT 89
Location 89
History 89
MOUNT WASHINGTON (LINCOLN) MINING DISTRICT 98
Location 98
History 98
OSCEOLA (WEAVER CREEK, SUMMIT DIGGINGS, HOGUM, WILLARD CREEK) MINING DISTRICT 113
Location 113
History 114
TUNGSTEN (HUB, LINCOLN, SHOSHONE) MINING DISTRICT 144
Location 144
History 144
LEXINGTON (LEXINGTON CANYON, SHOSHONE) MINING DISTRICT 152
Location 152
History 152

CHAPTER SEVEN, RANCHING AND AGRICULTURAL DEVELOPMENT IN SNAKE AND SPRING VALLEYS 155
INTRODUCTION 155
AGRICULTURAL AND RANCHING DEVELOPMENT IN NEVADA: 1850s – 1900s 155
AGRICULTURAL AND RANCHING DEVELOPMENT IN WHITE PINE COUNTY AND SNAKE AND SPRING VALLEYS: 1860s-1970s 161
EARLY SETTLERS AND RANCHING OPERATIONS IN SNAKE VALLEY 178
Samuel Hockman 178
Absalom S. Lehman 178
Willard Burbank 185
George W. Baker 186
Elwin W. Clay 195
Jonas Woodward 195
Other Early Snake Valley Settlers 197
EARLY SETTLERS AND RANCHING OPERATIONS IN SPRING VALLEY 198

CHAPTER EIGHT, POLITICAL, SOCIOECONOMIC, TRANSPORTATION, COMMUNICATIONS, AND LUMBER INDUSTRY DEVELOPMENT IN SNAKE AND SPRING VALLEYS 201
INTRODUCTION 201
ESTABLISHMENT OF WHITE PINE COUNTY 201
POPULATION TRENDS AND CHARACTERISTICS OF WHITE PINE COUNTY 203
ECONOMIC TRENDS AND CHARACTERISTICS OF WHITE PINE COUNTY 204
SETTLEMENT OF COMMUNITIES IN SNAKE VALLEY 205
Burbank 205
Baker 206
Garrison 207
Home Farm 207
TRANSPORTATION AND COMMUNICATION DEVELOPMENT IN SNAKE AND SPRING VALLEYS 208
Roads 208
Railroads 209
Aircraft 210
Newspapers 210
Mail 212
Electricity 214

DEVELOPMENT OF LUMBER INDUSTRY IN THE SNAKE RANGE 214

CHAPTER NINE, EUROAMERICAN AND NATIVE AMERICAN RELATIONSHIPS IN NEVADA: 1850s-1910s 219
INTRODUCTION 219
EARLY EUROAMERICAN AND NATIVE AMERICAN INTERACTION IN NEVADA PRIOR TO THE EARLY 1860s 219
TREATIES WITH GREAT BASIN NATIVE AMERICANS DURING THE 1860s 222
EUROAMERICAN AND NATIVE AMERICAN RELATIONSHIPS IN SNAKE AND SPRING VALLEYS 225

CHAPTER TEN, ADMINISTRATION OF THE SOUTHERN SNAKE RANGE BY THE U.S. FOREST SERVICE: 1909-1986 231
INTRODUCTION 231
ESTABLISHMENT OF NATIONAL FORESTS AND U.S. FOREST SERVICE . 231
U.S. FOREST SERVICE SURVEYS IN CENTRAL EASTERN NEVADA AND ESTABLISHMENT OF NEVADA NATIONAL FOREST 236
BOUNDARY ADJUSTMENTS TO NEVADA NATIONAL FOREST: 1912-1919 241
U.S. FOREST SERVICE ADMINISTRATIVE DEVELOPMENT IN THE SOUTHERN SNAKE RANGE 248
U.S. FOREST SERVICE REVEGETATION EFFORTS IN THE SOUTHERN SNAKE RANGE 255
U.S. FOREST SERVICE TIMBER UTILIZATION AND PRESERVATION POLICIES IN THE SOUTHERN SNAKE RANGE 259
U.S. FOREST SERVICE WILDLIFE AND FISH MANAGEMENT POLICIES IN THE SOUTHERN SNAKE RANGE 263
U.S. FOREST SERVICE RECREATIONAL DEVELOPMENT POLICIES IN THE SOUTHERN SNAKE RANGE 275
U.S. FOREST SERVICE GRAZING MANAGEMENT POLICIES IN THE SOUTHERN SNAKE RANGE 288
U.S. FOREST SERVICE MINING POLICIES IN THE SOUTHERN SNAKE RANGE 311
U.S. FOREST SERVICE ARCHEOLOGICAL RESEARCH ACTIVITIES IN THE SOUTHERN SNAKE RANGE 313
U.S. FOREST SERVICE SPELEOLOGICAL RESEARCH ACTIVITIES IN THE SOUTHERN SNAKE RANGE 318

CHAPTER ELEVEN, ADMINISTRATION OF LEHMAN CAVES NATIONAL MONUMENT: 1922-1986 321
INTRODUCTION 321
OPERATION AND MANAGEMENT OF LEHMAN CAVES UNTIL NATIONAL MONUMENT DESIGNATION IN 1922 321
CAMPAIGN TO HAVE LEHMAN CAVES DESIGNATED A NATIONAL MONUMENT 323
ESTABLISHMENT OF LEHMAN CAVES NATIONAL MONUMENT 329
ADMINISTRATION OF LEHMAN CAVES NATIONAL MONUMENT UNDER THE U.S. FOREST SERVICE: 1922-1933 330
U.S. FOREST SERVICE PLANS FOR LEHMAN CAVES NATIONAL MONUMENT: 1930-1933 341
TRANSFER OF ADMINISTRATION OF LEHMAN CAVES NATIONAL MONUMENT FROM THE U.S. FOREST SERVICE TO THE NATIONAL PARK SERVICE: 1933 346

CONTINUING FRICTION BETWEEN THE NATIONAL PARK SERVICE AND THE U.S. FOREST SERVICE OVER ADMINISTRATION OF LEHMAN CAVES 351
MANAGEMENT AND OPERATION OF LEHMAN CAVES NATIONAL MONUMENT: 1965-1986 357

CHAPTER TWELVE, HISTORY OF THE MOVEMENT TO ESTABLISH GREAT BASIN NATIONAL PARK 367
INTRODUCTION 367
EFFORTS TO ENLARGE THE LEHMAN CAVES-WHEELER PEAK AREA INTO A NATIONAL PARK AND STATE RECREATIONAL GROUND DURING THE 1920s 367
MOVEMENT RESULTING IN ESTABLISHMENT OF GREAT BASIN NATIONAL PARK: 1955-1986 376

CHAPTER THIRTEEN, DESCRIPTION AND RECOMMENDATIONS FOR MANAGEMENT AND INTERPRETATION OF HISTORIC SITES 421
INTRODUCTION 421
HISTORIC SITES WITHIN PARK 421
Lehman Orchard (1) 421
Lehman Aqueduct (2) 424
Rhodes Cabin (3) 427
Wheeler Peak Triangulation Station (4) 429
Osceola (East) Ditch (5) 430
Stella Lake Rock Dam (6) 438
Baker Lake Cabin (Peter Dieshman Cabin) (7) 440
Tilford Spring Cabin (8) 442
Shoshone Trail (9) 444
Johnson Mill (10) 446
Johnson Mine (11-11A-11B) 449
St. Lawrence "East" (12) 457
St. Lawrence "South" (13) 459
Shoshone Trail Log Structure Remnants (14) 462
Pole Canyon Adit-East (15) 463
Ponderosa Mine (16) 464
South Fork of Big Wash Sawmill (17) 466
Safe (18) 467
Dugout (19) 469
Wagon Remnants Along Baker Lake Trail (20) 471
Young Canyon Stone House (21) 473
Lincoln Canyon Mine/Tunnel (22) 475
Bonita Mine (23) 478
Chapman-Taylor Mine (24) 482
Wagon Remnants Along Timber Creek Trail (25) 483
Robison's Corral (26) 484
SIGNIFICANT MINES AND MINING-RELATED SITES OUTSIDE BUT NEAR PARK BOUNDARIES 485
Hub Mine 485
Mount Wheeler Mine 490
St. Lawrence Mine 494
St. Lawrence "West" 502

EPILOGUE 505

APPENDIX A, JOHN C. FREMONT'S OBSERVATIONS ON THE GREAT BASIN WRITTEN AT UTAH LAKE ON MAY 24, 1844 509

APPENDIX B, GEOGRAPHICAL MEMOIR UPON UPPER CALIFORNIA IN ILLUSTRATION OF HIS MAP OF OREGON AND CALIFORNIA BY JOHN C. FREMONT (WASHINGTON, 1848) 513

APPENDIX C, REMINISCENCES OF WHITE MOUNTAIN EXPEDITION IN AUTOBIOGRAPHY OF GEORGE WASHINGTON BEAN 521

APPENDIX D, CHIEF CHARACTERISTICS OF GREAT BASIN AS DESCRIBED BY JAMES H. SIMPSON IN HIS *THE SHORTEST ROUTE TO CALIFORNIA* (1869), PAGES 35-55 523

APPENDIX E, OBSERVATIONS ON NEVADA INDIAN TRIBES BY GEORGE M. WHEELER IN 1869 535

APPENDIX F, EXCERPTS OF GEOLOGICAL DATA ON THE SNAKE MOUNTAINS GATHERED BY THE WHEELER SURVEYS 539

APPENDIX G, REPORT ON TRANSIT OF VENUS BY WILLIAM EIMBECK, U.S. COAST AND GEODETIC SURVEY, DECEMBER 6, 1882 543

APPENDIX H, EXAMINATIONS OF WHEELER PEAK TRIANGULATION SITE BY U.S. COAST AND GEODETIC SURVEY PERSONNEL IN 1925, 1944, AND 1957 547

APPENDIX I, LAWS OF WHITE PINE MINING DISTRICT OCTOBER 10, 1865 . . . 551

APPENDIX J, ROLE OF CHINESE IN CONSTRUCTION OF WEST AND EAST DITCHES AT OSCEOLA 555

APPENDIX K, ENTRY FOR OSCEOLA GRAVEL MINING COMPANY IN ASSESSMENT BOOK, WHITE PINE COUNTY, 1891 557

APPENDIX L, PRELIMINARY REPORT ON THE TUNGSTEN MINING AND MILLING COMPANY'S TUNGSTEN PROPERTY AT TUNGSTEN, NEVADA, MARCH 7, 1912 559

APPENDIX M, LEHMAN CAVES NATIONAL MONUMENT, HISTORY OF WATER RIGHTS 565

APPENDIX N, ENTRY FOR ABNER [ABSALOM] LEHMAN IN ASSESSMENT BOOK, WHITE PINE COUNTY, 1891 569

APPENDIX O, TREATY WITH THE WESTERN SHOSHONES, NEVADA, 1863 571

APPENDIX P, NEVADA NATIONAL FOREST, FIRST PROCLAMATION 575

APPENDIX Q, NEVADA NATIONAL FOREST, SECOND PROCLAMATION 577

APPENDIX R, NEVADA NATIONAL FOREST, THIRD PROCLAMATION 581

APPENDIX S, HISTORY OF BIG WASH GRAZING ALLOTMENT TO 1939 585

APPENDIX T, HISTORY OF STRAWBERRY GRAZING ALLOTMENT TO 1939 . . . 587

APPENDIX U, HISTORY OF SWALLOW GRAZING ALLOTMENT TO 1939 591

APPENDIX V, HISTORY OF SHINGLE CREEK GRAZING ALLOTMENT TO 1939 . . 595

APPENDIX W, CATTLE SALTING PLAN, SNAKE DIVISION, NEVADA NATIONAL FOREST, 1918 599

APPENDIX X, GRAZING PLANS FOR BONITA BASIN AND STRAWBERRY CREEK DRAINAGE, 1927 603

APPENDIX Y, GRAZING ALLOTMENT DATA, SNAKE DIVISION, NEVADA NATIONAL FOREST, 1938 607

APPENDIX Z, LEHMAN CAVES NATIONAL MONUMENT, PROCLAMATION (NO. 1618), JANUARY 24, 1922 617

APPENDIX AA, AN ACT FOR THE PRESERVATION OF AMERICAN ANTIQUITIES, APPROVED JUNE 8, 1906 (34 STAT. 225) 619

APPENDIX BB, MANAGEMENT OBJECTIVES – LEHMAN CAVES NATIONAL MONUMENT, 1977 623

APPENDIX CC, PRIMARY THEMES FOR THE GREAT BASIN 627

APPENDIX DD, PUBLIC LAW 99-565, OCTOBER 27, 1986 (100 STAT. 3181) – ACT ESTABLISHING GREAT BASIN NATIONAL PARK 629

APPENDIX EE, NATIONAL REGISTER NOMINATION FORM – OSCEOLA (EAST) DITCH 633

APPENDIX FF, HISTORICAL BASE MAP 651

ANNOTATED BIBLIOGRAPHY 655
MANUSCRIPT SOURCES 655
NEWSPAPERS 660
MAPS 661
LEGISLATIVE DOCUMENTS 661
PUBLISHED WORKS 662
Books 662
Periodicals 670
Government Publications 673
THESES AND DISSERTATIONS 681
TECHNICAL REPORTS 682
INTERVIEWS 685
MISCELLANEOUS 687
LIST OF REPOSITORIES CONSULTED OR WHERE RESEARCH WAS CONDUCTED 688

PREFACE

This historic resource study has been prepared to satisfy in part the research needs as stated in the task directive (approved by Lew Albert, Acting Regional Director, Western Region, in a memorandum dated March 25, 1988) concerning Great Basin National Park, Historic Resource Study, under Package No. 165. The purpose of this study is the collection, presentation, and evaluation of historical research data pertaining to the historic events that occurred in the park and surrounding area and identification of historic resources associated with those events. It is intended that the study will provide a data base for the park's historic resources that will enable park administrators to formulate appropriate management policies to preserve, protect, and interpret those resources.

A number of persons have assisted in the preparation of this report. My special thanks extend to Park Superintendent Albert J. Hendricks, Chief Ranger Bruce Freet, and Resource Management Specialist Mac Brock for helping me to understand the park historical research needs and expectations for this study, making available the park data files for research purposes, providing guidance for the location of historic resources in the park, and making suggestions for persons to interview and repositories to consult during my research. I also wish to extend my appreciation to Western Regional Director Stanley T. Albright; Associate Regional Director, Resource Management and Planning John D. Cherry; Chief, Park Historic Preservation Thomas D. Mulhern; and Regional Historian Gordon Chappell for sharing their ideas on the nature of research and the scope of work required for the project. The History Division in the National Park Service's Washington Office, headed by Chief Historian Edwin C. Bearss, also provided direction and encouragement for the project.

In addition, my thanks go to the staffs of the various repositories with whom I consulted during research for this study. A list of these repositories may be seen at the end of this study.

One of the unexpected benefits of undertaking this study was the opportunity to contact a number of persons who have been involved in various historical endeavors in central eastern Nevada or have been long-time residents in the park area. I am indebted to all those who allowed me to interview them either in person or by telephone.

My thanks also go to John Latschar and Maurice L. Miller, both of whom were Section Chiefs, Branch of Planning, Western Team, Denver Service Center during the course of this project. These individuals provided encouragement and administrative oversight for the project.

Harlan D. Unrau
June 1989

INTRODUCTION

THE GREAT BASIN

The unique topography, climate, and drainage of a vast natural region of the western United States combine to make the Basin and Range Province area one of the most distinctive surface features of the North American continent. The term Basin and Range Province is used by the scientific community to describe an expanse of some 200,000 square miles (500,000 square kilometers) stretching from the Sierra Nevada Range on the west to the Wasatch Mountains on the east and from the Snake River Valley on the north to the Colorado River drainage system on the south. The region, more commonly known as the Great Basin, measures approximately 880 miles in length from north to south and nearly 570 miles in width at its broadest part. The region lies between latitudes 34 and 42 degrees and encompasses the western half of Utah, the southwest corner of Wyoming, the southeast corner of Idaho, a large portion of southeastern Oregon, part of Southern California, and virtually all of Nevada.

Despite the implication of its name, however, the Great Basin is not a single cup-shaped depression surrounded by mountains. Rather, it is comprised of a series of more than 90 basins separated from one another by more than 160 mountain ranges which have a general north-south trend and vary in length from 30 to 120 miles and from 3 to 15 miles in width. The valleys are generally wider than the ranges and are for the most part broad desert plains or basins lying at altitudes varying from sea level or a little less in the southwest to 4,000-5,000 feet in the north.

The mountain ranges have peaks commonly reaching above 9,000 feet above sea level, and where this occurs they catch a moderate amount of precipitation and support various species of tree and plant life. Some of the higher ranges have small permanent streams, but many of these disappear underground when they reach the valleys. The Sierra Nevada Range blocks much of the rain-bearing wind from the Pacific, forming a "rain shadow" over the entire region, which has an average annual rainfall of ten inches or less and supports little more than sparse desert or semidesert vegetation.

The Great Basin is particularly noted for its internal drainage system, whereby moisture falling on the surface leads eventually to closed valleys and does not reach the sea. The Humboldt River of northern Nevada, for instance, rises in ranges in the northeast part of the state, drains a number of small valleys on its way westward, and ends in a closed basin called the Humboldt Sink. Many of the smaller closed basins have their own interior drainage by draining underground to adjacent, lower basins, and thus often contain temporary playa lakes on the valley floors. These lakes generally hold water only during the winter season and spring runoff from the ranges or after flash-flood storms. These shallow sheets of water generally evaporate during the summer, leaving their beds a hard, smooth alkali plain.

One of the best descriptions of the topographical features and scenic grandeur of the Great Basin was written in 1885 by I.C. Russell, a professional geographer. Among other things, he commented on the distinctive qualities of the region:

> In the crossing from the Atlantic to the Pacific, between the Mexican boundary and the central portion of Oregon, one finds a region, bounded by the Sierra Nevada on the west and the Rocky Mountain system on the east, that stands in marked contrast in nearly all its scenic features with the remaining portions of the United States. The traveler in this region is no longer surrounded by the open, grassy parks and heavily timbered mountains of the Pacific slope, or by

the rounded and flowing outlines of the forest-crowned Appalachians, and the scenery suggests naught of the boundless plains east of the Rocky Mountains or of the rich savannas of the Gulf States. He must compare it rather to the parched and desert areas of Arabia and the shores of the Dead Sea and the Caspian.

The bare mountains reveal their structure almost at a glance, and show distinctly the many varying tints of their naked rocks. Their richness of color is sometimes marvelous, especially when they are composed of the purple trachytes, the deep-colored rhyolites, and the many-hued volcanic tuffs so common in western Nevada. Not unfrequently a range of volcanic mountains will exhibit as many brilliant tints as are assumed by the New England hills in autumn. On the desert valleys the scenery is monotonous in the extreme, yet has a desolate grandeur of its own, and at times, especially at sunrise and at sunset, great richness of color. At mid-day in summer the heat becomes intense, and the mirage gives strange delusive shapes to the landscape, and offers false premises of water and shade where the experienced traveler knows there is nothing but the glaring plain. When the sun is high in the cloudless heavens and one is far out in the desert at a distance from rocks and trees, there is a lack of shadow and an absence of relief in the landscape that makes the distance deceptive – the mountains appearing near at hand instead of leagues away – and cause one to fancy that there is no single source of light, but that the distant ranges and the desert surfaces are self-luminous. The glare of the noonday sun conceals rather than reveals the grandeur of this rugged land, but in the early morning and the near sunset the slanting light brings out mountain range after mountain range in bold relief, and reveals a world of sublimity. As the sun sinks behind the western peaks and the shades of evening grow deeper and deeper on the mountains, every ravine and canon becomes a fathomless abyss of purple haze, shrouding the bases of gorgeous towers and battlements that seem encrusted with a mosaic more brilliant and intricate than the work of Venetian artists. As the light fades and the twilight deepens, the mountains lose their detail and become sharply outlined silhouettes, drawn in the deepest and richest purpose against a brilliant sky.

In terms of its geological background, many scientists have characterized the ranges and valleys of the Great Basin as huge blocks of the earth's crust, which have been uplifted, dropped, and tilted. Enormous cracks, or faults, bound the blocks, and the uplifted parts have been eroded over geologic time, with the debris accumulating over the depressed parts. Several such blocks are to be found in both western Utah and western Nevada. The blocks are 15-30 miles across and follow an approximate north-south direction. There are about 30 major fault-bounded blocks between the Wasatch and Sierra Nevada ranges. The movement in the faults – a response to stresses in the earth's crust – has been in a vertical direction, between 1,000 and 15,000 feet in extent, although toward the western edge of the province some horizontal movement has been observed.

In many places volcanic rocks have been cut and displaced by the block faults, and since the volcanic rocks are some 30 million years old, the faulting is obviously younger than that. Since the faulting generally occurs in small steps of a few feet each, and since most of the faults have total displacements of several thousand feet, it is believed that, in general, the process took an enormous period of time. Furthermore, many of the faults exhibit fresh surfaces, indicating relatively recent movement, while there are historical records of earthquakes and constant contemporary micro-earthquakes, indicating that faulting has continued to the present. The Great Basin is nonetheless youthful in a geologic sense, and it is likely that it obscures older mountain systems that were,

respectively, eastward extensions of the Sierra Nevada and westward extensions of the developing Rocky Mountains.[1]

GREAT BASIN NATIONAL PARK

On October 27, 1986, President Ronald W. Reagan signed into law (Public Law 99-565; 100 Stat. 3181) an act of Congress providing for the establishment of Great Basin National Park. Thus, the park became the nation's 49th reservation to be so designated.

Geographic Location

Great Basin National Park, consisting of nearly 77,000 acres, is located in central eastern Nevada within the Snake Mountains, an elongated north-south trending range bounded on the west by Spring Valley and on the east by Snake Valley. The park boundaries are contiguous with Humboldt National Forest. The park lies in White Pine County, and its headquarters are located at Lehman Caves, some five miles west of Baker, Nevada, near the Nevada-Utah state boundary.

Purpose

The purpose of the park is stated in its establishing act. The park was established

> to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values.

To accomplish this purpose the Secretary of the Interior was empowered to

> protect, manage, and administer the park in such a manner as to conserve and protect the scenery, the natural, geologic, historic, and archaeological resources of the park, including fish and wildlife and to provide for the public use and enjoyment of the same in such a manner as to perpetuate these qualities for future generations.

Significance

Located in the heart of the Great Basin, Great Basin National Park has exceptional examples of regional geology, biologic diversity, and scenic grandeur. Among the significant geologic attractions in the park are rugged cliffs, deep gorges, block-faulted mountains, numerous caves, pinnacles, and remnants of the glacial age. Lehman Caves is one of the largest limestone solution caverns in the western United States, featuring an array of formations including unusual shields found here and in few other caves. Carved into its present shape by mountain glaciers and by rushing waters of various streams, Wheeler Peak (3,982 meters – 13,063 feet) is one of the highest mountains in the Great Basin, the second highest peak in the state of Nevada, and the pinnacle of the impressive Snake Range. From the summit of Wheeler Peak one is afforded spectacular panoramas of the Great Basin, and on its flanks are a remnant glacial ice field and a desert-bound

---

1. Nevin M. Fenneman, *Physiography of Western United States* (New York and London, McGraw-Hill Book Company, Inc., 1931), pp. 326-95; A.J. Eardley, *Structural Geology of North America* (2d ed., 1962), ch. 31; Gloria Griffin Cline, *Exploring the Great Basin* (Norman, University of Oklahoma Press, 1963), pp. 1-8; and Russell R. Elliott, *History of Nevada* (Lincoln, University of Nebraska Press, 1973), pp. 1-14.

rock glacier. Among other features in the park is the noted Lexington Arch, a dramatic, six-story-high limestone formation.

The park's dramatic mountain rises protect an array of plant and animal habitats, ranging from upper Sonoran sagebrush communities to the Arctic alpine tundra life zone, encompassing in all five life zones within the space of five miles. During the spring and summer many kinds of wildflowers bloom in a progression up the mountain slopes, including lupine, yellow aster, larkspur, locoweed, globemallow, columbine, pricklepoppy, and cactus. Forested areas with such species as timber pine, ponderosa pine, Englemann spruce, white fir, Douglas fir, aspen, and mountain mahogany occur in the park, punctuated by mountain meadows and alpine lakes. At the higher elevations the park contains several of the largest known groves of Bristlecone pines, which can be more than 4,500 years old and are among the oldest living things on earth. Among the types of wildlife that inhabit the park are mule deer, bighorn sheep, cougars, coyotes, and a variety of birds including golden eagles, blue grouse, sage grouse, owls, bluebirds, and dippers. Rainbow and brook trout and the Bonneville cutthroat trout occur in the park's perennial streams.

The park also contains a variety of cultural resources associated with the history of human activity in the Great Basin. Such resources include scattered remains from prehistoric times and structures and sites related to mining, western surveys, ranching, and grazing. These themes are among the most significant in terms of illustrating the historic socioeconomic development of the park area and the wider Great Basin.

CHAPTER ONE
OVERVIEW OF PREHISTORY OF GREAT BASIN NATIONAL PARK

Much of what is known of the prehistory of the Great Basin has resulted from excavations, particularly in caves and rockshelters, large-scale ground surveys conducted by federal bureaus such as the Bureau of Land Management and the U.S. Forest Service, and smaller state, county, and private surveys, many of which have been carried out in response to ground-disturbing projects and development proposals. Excavations have provided considerable detail on prehistoric subsistence patterns and cultural chronologies, while surveys have aided the identification of land use and settlement patterns. Excavated cave and rock shelter sites in the vicinity of Great Basin National Park include those in Smith Creek Canyon in the northern Snake Range and the Baker Creek cave system and Lehman Caves in the park.

Three distinct cultural manifestations are represented in the archeological record of the park vicinity. These include the Paleoindian Period (12,000 BC – 9,000 BC), Archaic (9,000 BC – 500 AD), and Fremont (500 AD – 1300 AD).

The earliest well-dated sites in the Great Basin fall within the Paleoindian Period. The Paleoindians were big game hunters, their primary subsistence focus being large, now extinct Pleistocene fauna, including mammoth, bison, ground-sloth, camel, and horse. Large fluted and unfluted projectile points, such as Clovis, Folsom, and Plano points, were used to hunt the animals. The Paleoindian hunting groups were likely small and mobile, thus permitting them to move with the herds they were harvesting.

Paleoindian sites are generally found in the open as "kill sites," in caves and rockshelters, and along the terraces of now-dry bodies of water. While relatively few Paleoindian sites have been found, there is evidence of Paleoindian occupation in Smith Creek Canyon on the east side of the northern Snake Range. Thus, there is reason to assume a Paleoindian presence within the park area.

In response to climatic changes resulting in the desiccation of lakes scattered throughout the Great Basin and to the simultaneous disappearance of the larger Pleistocene game animals, a broader food-gathering pattern emerged. Known as the Great Basin Desert Archaic, this pattern emphasized utilization of a wider range of plant and animal products. Seed-grinding implements, such as manos and milling stones, were employed to process hard-shelled grass seeds. Other activities associated with this period were use of basketry, netting, fiber and hide moccasins, spears, and digging sticks. Shell beads were acquired in trade with groups from coastal California areas.

Archaic sites are generally found in caves and rockshelters and open areas near springs. Among the excavated sites in the park vicinity that have Archaic components are Danger Cave, Newark Cave, Swallow Shelter, Amy's Shelter, and Kachina Cave. Archaic evidence has also been found in several widely scattered areas within the park. These site types include caves, rockshelters, camp sites, stone tool manufacturing areas (i.e., lithic scatters), artifact scatters, burial areas, petroglyphs, and pictographs.

The Fremont Period covers a time span when the Great Basin was inhabited by peoples employing a sedentary horticultural lifestyle. The Fremont lived in small villages or farmstead communities. These peoples were primarily small-scale farmers, supplementing their diet by hunting and gathering.

The Fremont peoples manufactured pottery and had a distinctive artistic style characterized by clay figurines and rock art. Residential structures were fairly substantial, and storage

structures were built to protect excess plant foods. The principal Fremont site near the park is at Garrison, while other Fremont site types in the immediate vicinity of the park include antelope drives, hunting blinds, cemeteries, and plant food processing stations. Fremont style rock art (petroglyphs and pictographs) and other cultural materials have been noted in the park. As the park lies on the western Fremont frontier, it is possible that Fremont peoples appeared in the area as late as 700-1100 AD.

Great Basin National Park lies within the ethnographic territory of the Numic speaking Western Shoshone (1300 AD – Ethnographic Present). At the time of contact with Euroamericans seven Shoshone villages were reported in the southern Snake vicinity. Although Spring Valley peoples have been referred to as "Gosiutes," there are no cultural and linguistic differences between the two groups.

The Western Shoshone were dispersed into small kin groups living in seasonally occupied camps near water sources. At various times during the year, several villages would join together to conduct ceremonies and communal hunts.

Subsistence activities centered on an annual round of gathering vegetal foods and animal hunts. In the fall communal rabbit and antelope drives were held and pinyon nuts harvested and stored. During the winter families gathered to live in villages which were usually located in what is now known as the lower pinyon-juniper zones. Individual families dispersed to lower valley areas during the spring and summer to harvest grass seeds, roots, tubers, and small mammals.

Domestic structures were generally conically-shaped brush houses supported by wood pole frames. Floors were circular and covered with grass or mats. Brush lean-tos and circles, four-post sunshades, caves, and rockshelters provided additional shelter. Both earth-covered and willow-wickiup sweathouses were constructed.[1]

In recent years numerous studies have been prepared to document the prehistory of the Great Basin. Among the most useful of these studies are:

Robert L. Bettinger and Martin A. Baumhoff, "The Numic Spread: Great Basin Cultures in Competition," *American Antiquity*, XLVII (July, 1982), 485-503.

Warren L. D'Azevedo, ed., *Great Basin, Volume II, Handbook of North American Indians* (Washington, Smithsonian Institution, 1986).

Don Fowler and David Koch, "The Great Basin," in Gordon L. Bender, ed., *Reference Handbook on the Deserts of North America* (Westport, Connecticut, Greenwood Press, 1982), pp. 7-63.

David B. Madsen and James F. O'Connell, eds., *Man and Environment in the Great Basin, SAA Papers No. 2* (Washington, Society for American Archaeology, 1982).

U.S. Department of the Interior, Bureau of Land Management, Nevada Office, *Current Status of CRM Archaeology in the Great Basin*, Cultural Resource Series, Monograph No. 9, by C. Melvin Aikens, ed., August 1986.

---

1. U.S. Department of the Interior, National Park Service, Western Archeological and Conservation Center, *An Archeological Overview of Great Basin National Park*, by Krista Deal (Publications in Anthropology No. 49, 1988), pp. 4-6, 31-84, 119-21. The Southern Paiute inhabited the extreme southern portions of Snake and Spring valleys during ethnographic times.

After the establishment of Great Basin National Park in October 1986, the National Park Service conducted an archeological overview of the park. The study, entitled *An Archeological Overview of Great Basin National Park*, was prepared by Krista Deal of the Western Archeological and Conservation Center in Tucson and published in 1988. Among the components of the study are discussions of: (1) prehistoric and ethnographic cultural history of the area; (2) an inventory of archeological investigations and cultural resources in the park with recommendations for management; (3) a summary of general management actions and suggestions for future research; and (4) an extensive bibliography of sources related to archeological and anthropological concerns in the park and surrounding region.

Various other archeological and anthropological studies have been conducted in recent years that focus on the state of Nevada, eastern Nevada and western Utah, and White Pine County. These efforts have particular significance for an understanding of the prehistory of the park and its immediate vicinity. Among the more important of these studies are:

C. Melvin Aikens, *Indian Petroglyphs from White Pine County, Nevada, Miscellaneous Paper Number 19*, University of Utah Anthropological Papers, Number 99, 1978.

C. William Clewlow, Jr., ed., *Four Rock Art Studies* (Socorro, New Mexico, Ballena Press, 1978).

Don D. Fowler, *Final Report, Assessment of Cultural Resources of Lehman Caves National Monument, White Pine County, Nevada*, University of Nevada System, Desert Research Institute, Human Systems Center, Technical Report No. 4, 1977.

_____. *No. 2: Archeological Survey in Eastern Nevada, 1966, and No. 3: The Archeology of Newark Cave, White Pine County, Nevada*, University of Nevada System, Desert Research Institute, Technical Report Series S-H, Social Sciences & Humanities, Publications Nos. 2 and 3, 1968.

Robert F. Heizer and Martin A. Baumhoff, *Prehistoric Rock Art of Nevada and Eastern California* (Berkeley, University of California Press, 1962).

Steven R. James, ed., *Prehistory, Ethnohistory, and History of Eastern Nevada: A Cultural Resources Summary of the Elko and Ely Districts*, Contract No. YA-553-CTO-1025 between the Bureau of Land Management and the University of Utah Archeological Center, Reports of Investigations 81-5, April 1981.

Carling Malouf, "The Gosiute Indians," Paper Number Three, in *University of Utah, Department of Anthropology, Anthropological Papers, Numbers 1-8*, November 1950.

Jack R. Rudy, *Archeological Survey of Western Utah*, University of Utah, Department of Anthropology, Anthropological Papers, Number 12, November 1953.

Dee Calderwood Taylor, *The Garrison Site: A Report of Archeological Excavations in Snake Valley, Nevada-Utah*, University of Utah, Department of Anthropology, Anthropological Papers, No. 16, May 1954.

U.S. Department of the Interior, National Park Service, Western Archeological Center, *Archeological Summaries for Great Basin New Area Studies: Monitor Valley,*

Railroad Valley, Snake Range, Lassen-Applegate Trail, by Yvonne G. Stewart, 1980.

C.D. Zeier, *The White Pine Power Project: Cultural Resource Considerations, Vol. I, A Culture History Overview and Predictive Model for the Existence of Cultural Resources in White Pine County, Nevada* (Los Angeles, Dames and Moore, 1981).

CHAPTER TWO
DISCOVERY AND EARLY EXPLORATION OF THE GREAT BASIN: 1776 – 1850s

INTRODUCTION

This chapter will discuss four phases of the discovery and early exploration of the Great Basin. The four topics are: (1) Spanish penetration; (2) fur traders and trappers; (3) westward trails and expansion; and (4) early official exploration surveys.

SPANISH PENETRATION

With the Columbus voyage of 1492, European exploration of the Americas was commenced, and during the next 250 years expeditions explored the Atlantic and Pacific coasts of North America and much of its interior, revealing most of the physical characteristics of the continent. By the 1750s only one large area still lay unknown to Euroamericans – the Great Basin, lying in the heart of the Trans-Mississippi West. In subsequent years European fascination with finding a northwest water passage to Cathay, trapping of furs, and the quest for legendary lands of riches in the American Southwest played significant roles in the discovery and exploration of the Great Basin. These economic motives prompted the exploration of this unknown land and provided an indirect motivating force for a Spanish advance northward from New Spain.[1]

As various European nations converged upon North America to achieve the aforementioned goals, Spain, which had not moved northward because the material inducement was not sufficient for her to battle the troublesome Apaches and Comanches, realized that she must protect her New World territories, and this incentive aroused her from her lethargy. Northward expansion from New Spain followed three principal lines: northwestward to Sonora and the Californias; up the central plateau through Nueva Vizcaya to New Mexico; and up the central plateau through Coahuila into Texas.

By the early 1770s Spain had established several missions along the Alta California coast. Now Spain was faced with the problem of supplying these new outposts which lay so far apart. It soon became apparent that an overland route between the New Mexico settlements and the Alta California missions was essential if Spanish control were to continue on the California coast and Spanish domination were to endure over the American Southwest. The search for this overland route through much arid and largely unknown country is the first chapter in the Euroamerican penetration of the Great Basin.

Two separate Spanish expeditions entered the Great Basin in 1776, one on the west led by Franciscan Father Francisco Hermenegildo Garcés and one on the east by Franciscan Fathers Francisco Silvestre Vélez de Escalante and Francisco Atanasio Domínquez. These friars are of particular significance because they were the first white men to penetrate the facade of the Great Basin. Their expeditions provided a better understanding of this previously unknown region and set the stage for future exploration.[2]

The Garcés expedition set out from Tubac on January 8, 1774, and opened a route to the San Gabriel Mission in California. The route passed along the Gila River to present-day Yuma, Arizona, northward along the Colorado River to present-day Needles, California,

---

1. Cline, *Exploring the Great Basin*, pp. 18-33.

2. Ibid., pp. 33-35.

across the Mojave Desert to present-day Victorville, California, in the Mojave River drainage basin, over Cajon Pass in the San Bernardino Mountains to the San Gabriel Valley, and then on to present-day Bakersfield, California, before returning. The most important part of the 2-1/2-year journey occurred on March 7, 1776, when Garcés left the Colorado drainage system west of present-day Needles and entered the Great Basin. On his return Garcés followed a trail slightly north of his previous one and left the Great Basin on May 25, 1776, thus ending the first penetration of the region by Euroamericans. Although he explored only a small portion of this inhospitable region, Garcés laid the basis for much conjectural geography which would play a significant role in shaping the future history of exploration of the Great Basin.[3]

The Escalante-Domínquez expedition, which left Santa Fe on July 29, 1776, in search of a feasible overland route to Monterey on the Pacific Coast of Alta California, is more significant than Garcés in regard to the Great Basin and this study. These friars explored a considerable portion of the eastern Great Basin in present-day Utah and came within 80 to 90 miles east of present-day Great Basin National Park.

The little group departed, following the fur trappers' trail northwest past Mesa Verde, descending the Dolores River some distance. The party crossed the Uncompahgre Plateau, the Gunnison River, Grand Mesa, and Battlement Mesa, before reaching the Colorado River in the vicinity of Grand Valley. Here they crossed the Colorado River, ascended the escarpments of the East Tavaputs Plateau, and at the divide passed over to the watershed of Green River. Proceeding through the Uinta Basin, the expedition followed the Spanish Fork River through the Wasatch Mountains and entered Utah Valley and the Great Basin on September 21, 1776 – the first Euroamerican entrance into the Great Basin above the latitude of the Mojave Desert. Upon leaving Utah Valley, the Spaniards turned to the southwest in order to reach the latitude of Monterey before turning west. On September 29 they reached the Sevier River near present-day Mills, Utah. Continuing southward, the party passed close to Clear Lake and proceeded through Beaver River Valley, camping at various spots between present-day Delta and Milford during the early part of October.[4]

During this portion of the expedition the group was some 80 to 90 miles east of the Snake Mountains. The diary of the expedition kept by Escalante contains poignant observations about the desolation and harsh environment of the region. On October 1, for instance, the party camped on the edge of salt marshes some 4-1/2 miles northwest of Pahvant Butte in present-day Juab County. The padres called the camp site "Llano Salado" (Salt Plain) because "of some white and thin shells that we found," leading them to believe that there had once been a large lake in the area. Escalante commented further:

> Having descended the ravine, or pass, we took to the west-northwest over low hills with a great deal of rock and, having gone two leagues, we entered a sagebrush stretch and traveled three leagues west along the edge of a dry arroyo without a trail. We left the arroyo and, after going two leagues west by north, turned toward the plain. We thought we saw marshland or lake water nearby, hurried our pace, and discovered that what we had judged to be water

---

3. For more information on the Garcés expedition, see Elliott Cowes, ed., *On the Trail of a Spanish Pioneer: The Diary and Itinerary of Francisco Garcés* (2 vols., New York, F.P. Harper, 1900); Herbert Eugene Bolton, *The Early Explorations of Father Garcés on the Pacific Slope* (New York, Macmillan, 1917); and John Galvin, ed., *A Record of Travels in Arizona and California, 1775-1776* (San Francisco, John Howell Books, 1965).

4. For more information on the Domínquez-Escalante expedition see Herbert E. Bolton, trans. and ed., *Pageant in the Wilderness: The Story of the Escalante Expedition to the Interior Basin, 1776* (Salt Lake City, Utah Historical Society, 1950), and Herbert E. Auerbach, "Father Escalante's Route," *Utah Historical Quarterly*, IX (July, October 1941), 109-28, and XI (January, April, July, October 1943), 1-132.

was salt in some places, saltpeter in others, and in others dried alkaline sediment. We kept on going west by south over a plain and salt flats and, after traveling more than six leagues, we halted without having found water fit to drink or pasturage for the horses, since these already could go no farther. There was some pasturage where we stopped, but bad and scarce. All over the plain behind there had been none, either good or bad.[5]

The following day the friars encountered some Indians "from among the full-bearded and pierced-nose ones, who called themselves Tirangapui in their language." These "Bearded Utes," who were probably Southern Paiutes, engaged in friendly conversation with the padres, who immediately began efforts to Christianize the natives. The expedition's journal for October 2 states:

> We announced the Gospel to them as well as the interpreter could manage it.
>
> We told them that if they wanted to attain the blessings proposed we would come back with more padres so that all could be instructed, as would those of the lake who were awaiting the friars, but that in such an event they were not to live scattered about as now but gathered together in towns.
>
> They all replied very joyfully that we must come back with the other padres, that they would do whatsoever we taught them and ordered them to do – the chief adding that then, if we so wished and deemed it more advantageous, they would go to live with the Lagunas (which we likewise had proposed to them). We took our leave of them, and all, the chief especially, kept holding us by the hand with great tenderness and affection. But where they expressed themselves the most was when we were already leaving this place. Scarcely did they see us depart when all – following their chief, who started first – burst out crying copious tears, so that even when we were quite a distance away we kept hearing the tender laments of these unfortunate little sheep of Christ, lost along the way simply for not having the Light. They touched our hearts so much that some of our companions could not hold back the tears.[6]

While proceeding along the Beaver River Valley north of present Milford, an early snowstorm blanketed the area. Further difficulty was encountered when the party failed to find a route westward across the Beaver Mountains. On October 7 the padres noted that they "were in great distress, without firewood and extremely cold, for with so much snow and water the ground, which was soft here, was unfit for travel."[7]

The following day the group reluctantly concluded that it should return to Santa Fe. The expedition continued south to the vicinity of modern Cedar City, where it left the Great Basin and crossed to the Colorado River, negotiating it by what since has been known as the Crossing of the Fathers. The expedition finally reached Santa Fe on January 2, 1777, completing a 1,800-mile journey in slightly more than five months.

Although the explorers were not able to achieve their goal of blazing a trail between Santa Fe and Monterey, the Domínquez-Escalante expedition did make the first comprehensive traverse of the Colorado Plateau and of a considerable portion of the eastern Great Basin.

---

5. Fray Angelico Chavez, trans., and Ted J. Warner, ed., *The Domínquez-Escalante Journal* (Provo, Brigham Young University Press, 1977), pp. 65, 67.

6. Ibid., pp. 66-67.

7. Ibid., p. 70.

The diary kept by Escalante and the maps drawn by Bernardo Miera y Pacheco are, according to Great Basin historian Gloria Griffin Cline, "important items in western American historical literature, since they provided a basis for further exploration and additional conjectural geography which was to achieve world-wide fame."[8]

The Garcés and Domínquez-Escalante explorations of 1776 were the last official Spanish expeditions to penetrate the Great Basin. By giving literary as well as cartographic expression to their activities in that region, they set the course of subsequent exploration and established the eastern and western approaches to the Old Spanish Trail which would be inaugurated during the winter of 1830-31.[9]

FUR TRADERS AND TRAPPERS

For more than two centuries the fur trade was the principal business upon the American frontier. This commercial enterprise was pioneered by the French and British, who had abandoned their dreams of wealth derived from precious metals for more substantial goals. With the Peace of Paris of 1763, Great Britain replaced France as the major power in North America, and with the advent of American independence as a result of the Treaty of Paris in 1783 the United States became the primary competitor of the British. While the first explorers and cartographers focused attention upon the trans-Mississippi West, British and American competitors in the Columbia and Missouri basins stimulated interest in the southern drainage area and led fur trappers in the Great Basin.

Between 1818 and 1846, when the British were forced to retreat into northern North America, they played a significant role in the exploration of the Great Basin. The Snake River Expedition, inaugurated by the North West Company in 1818 and adopted by the Hudson's Bay Company in 1821, discovered and explored many of the important features of the region. The members of the Snake Country expeditions proceeded southward from their posts in what is now the northwestern United States and pushed into the Great Basin as early as 1818, at least six years before American penetration. Thus, the North West and Hudson's Bay companies through their vital organ, the Snake Country Expedition, are credited with the discovery and exploration of a large part of the northern Great Basin, particularly those sections lying within the present political boundaries of northern Utah and Nevada, southwestern Idaho, and southeastern Oregon.[10]

Peter Skene Ogden was a leading figure in the Anglo-American struggle for the fur trade and empire during the 1820s. As a brigade leader for the Hudson's Bay Company he conducted six Snake Country expeditions between 1824 and 1830, seeking to create a "fur desert" between United States territory and the southern approaches to the Columbia River. The British implemented this "scorched earth" policy – the systematic trapping out of streams – not only for the purpose of acquiring as much wealth as possible but also to discourage American trapper penetration and the consequent entry of pioneer farmers.[11]

---

8. Cline, *Exploring the Great Basin*, p. 48. For more information on Miera's maps, see Carl I. Wheat, *Mapping the Trans-Mississippi West*: 1540-1861 (6 vols, San Francisco, Institute of Historical Cartography, 1957-58), I, 94-116.

9. Cline, *Exploring the Great Basin*, pp. 54, 58-59.

10. Ibid., pp. 77, 93.

11. Ted J. Warner, "Peter Skene Ogden," in *The Mountain Men and the Fur Trade of the Far West*, ed. by LeRoy R. Hafen (Glendale, California, The Arthur H. Clark Company, 1966), III, 213-38.

Ogden's fifth Snake Country Expedition in 1828-29 was one of his most important. Prior to that time he had trapped along the major streams and their tributaries in what are now the states of Montana, Oregon, Idaho, and Utah, but he had not entered the largest area of the Great Basin, that region which lies chiefly within the boundaries of the modern state of Nevada.

This region remained virtually untouched, probably because of its harsh, forbidding environment. With one exception all of the important streams of this area are fed from the high mountains on the west. The Humboldt River alone derives its waters from the interior basin ranges, largely from the Ruby and East Humboldt mountains. The Humboldt River was one of the most important discoveries of Ogden's 1828-29 expedition. Naming it the "Unknown River," he was the first Euroamerican to arrive on its banks and the first to follow it from its source to its sink near present-day Lovelock, Nevada. Despite its brackish water and the barrenness and unbearable conditions of the region through which it flowed, this river would provide an artery across the western part of the Great Basin for future exploration and travel.[12]

Virtually all of Odgen's travels were to the north of present-day White Pine Country, Nevada. During his 1829-30 expedition, however, he may have passed as far south as the Elko-White Pine county line on his way from the Humboldt River to the Great Salt Lake.[13]

Although the British antedated the Americans in the Great Basin by six years, the Americans were destined to play a significant role in the discovery of topographical features in the region. During the years between 1824 and 1830 American fur traders roamed over almost every section of the Great Basin, revealing the arid and inhospitable nature of the area.[14]

One of the most prominent American fur organizations was the Rocky Mountain Fur Company, founded in 1822 by Major Andrew Henry and Brigadier General William Ashley.[15] The formation of this enterprise was an important event in Great Basin history, for the roster of this company contained the names of some of the most distinguished men in the history of the region's exploration. It was under the banner of this company that Jedediah Smith entered the Great Salt Lake area in 1824-25 and led the vanguard of the American fur trade into the Great Basin, particularly after he, David Jackson, and William Sublette purchased the company in 1826.[16]

As a result of the Smith-Jackson-Sublette purchase of the Rocky Mountain Fur Company in 1826, the partners began to prepare for expanding operations. Jackson was named the

---

12. Cline, *Exploring the Great Basin*, pp. 111-12, 131. The best historical account of the Humboldt River and its importance to the Great Basin is Dale L. Morgan, *The Humboldt: Highroad of the West* (New York, Farrar and Rinehart, 1943).

13. Alvin R. McLane, "Exploration and Early Mapping in Eastern Nevada," Paper Presented at the White Pine Public Library, Ely, Nevada, April 5, 1988, p. 1.

14. Cline, *Exploring the Great Basin*, p. 132.

15. Harvey L. Carter, "William H. Ashley," in *The Mountain Men and the Fur Trade*, ed. by Hafen, VII, 23-34.

16. Cline, *Exploring the Great Basin*, p. 132; Harvey L. Carter, "Jedediah Smith," in *The Mountain Men and the Fur Trade*, VIII, 331-48; and Harrison Clifford Dale, *The Ashley-Smith Explorations and the Discovery of a Central Route to the Pacific, 1822-1829* (Cleveland, The Arthur H. Clark Company, 1918), pp. 179-86.

resident partner, maintaining his headquarters first in the vicinity of the Great Salt Lake and later east of the mountains near the headwaters of the Sweetwater River. Sublette was appointed to make the annual trip to St. Louis with the year's accumulation of furs and obtain requisite supplies. Smith was designated the explorer to seek out new fields for exploration.[17]

The three partners undertook to operate in the region between the Great Salt Lake and the Pacific Ocean. Eager to penetrate this vast new area, the men decided that Smith should explore and survey the vast expanse to determine its fur-bearing resources, business potentialities, and geographical features. Consequently, Smith, with a party of fifteen men, embarked on a "South West Expedition" in 1826-27, thus becoming the first explorer to pass overland to California from the American frontier. Of significance for this study is the fact that Smith crossed the Snake Range over present-day Sacramento Pass during this expedition, hence becoming the first Euroamerican to penetrate the vicinity of Great Basin National Park.

Leaving Cache Valley in mid-August 1826 Smith and his men rode southwest into the valley of the Great Salt Lake, then southward through Utah Valley and the present-named Sevier and Beaver River valleys, past the sites of the modern towns of Paragonah, Parowan, and Cedar City, Utah, before passing over the rim of the Great Basin near Ash Creek, a tributary of the Virgin River which is part of the Colorado River drainage system. While this route is generally accepted by scholars, there are some who believe that Smith turned west from Sevier Valley and crossed the range of hills west of Escalante Valley, suggesting that he entered the present state of Nevada near the modern towns of Panaca and Pioche.[18] The only information from Smith concerning this part of his expedition is found in a somewhat confusing letter written on July 12, 1827, to Brigadier General William Clark, one of the leaders of the earlier Lewis and Clark Expedition and then Superintendent of Indian Affairs:

> My situation in this country has enabled me to collect information respecting a section of the country which has hitherto been measurably veiled in obscurity to the citizens of the United States – I allude to the country S. W. of the *Great Salt Lake* west of the Rocky Mountains.
>
> I started about the 22^{d} of August 1826, from the Great Salt Lake, with a party of fifteen men, for the purpose of exploring the country S. W. which was entirely unknown to me, and of which I could collect no satisfactory information from the Indians who inhabit this country on its N. E. borders.
>
> My general course on leaving the Salt Lake was S. W & W, Passing the Little Uta Lake and ascending Ashley's river, which Empties into the Little Uta Lake. – From the lake I found no more signs of buffalo: there are a few antelope and mountain sheep, and an abundance of *black tailed hares*. On Ashley's river, I found a nation of Indians who call themselves *Sampatch*; they were friendly disposed towards us. I passed over a range of mountains running S. E. & N. W. and struck a river running S. W. which I called *Adams River*, in compliment to our President. – The water is of a muddy cast, and is a little

---

17. Cline, *Exploring the Great Basin*, pp. 151-52, and Dale L. Morgan, *Jedediah Smith and the Opening of the West* (Lincoln, University of Nebraska Press, 1953), pp. 175-92.

18. For more discussion of this issue, see C. Hart Merriam, "Earliest Crossing of the Deserts of Utah and Nevada to Southern California: Route of Jedediah S. Smith in 1826," *California Historical Quarterly*, II (October 1923), 228-36, and F.N. Fletcher, "Eastbound Route of Jedediah S. Smith, 1827," *California Historical Quarterly*, III (January 1924), 344-49.

brackish. The country is mountainous to the East; towards the West there are sandy plains and detached rocky hills.

Passing down this river some distance, I fell in with a nation of Indians who called themselves *Pa Ulches* (those Indians, as well as those last mentioned, wear rabbit skin robes) who raise some little corn and pumpkins. – the country is nearly destitute of game of any description, except a few hares. Here, (about 10 days march down it) the river turns to the South East. On the S. W. side of the river there is a *cave*, the Entrance of which is about 10 or 15 feet high, and 5 or 6 feet in width; – After descending about 15 feet, a room opens out from 25 to 30 feet in length and 15 to 20 feet in width; – the roof, sides and floor are solid *Rock Salt*, a sample of which I send you, with some other articles, which will be hereafter described. I here found a Kind of plant of the prickly pear kind, which I called the cabbage pear, the largest of which grows about two feet and a half high and 1-1/2 feet in diameter; upon examination I found it to be nearly of the substance of a turnip, altho' by no means palatable; its form was similar to that of an Egg, being smaller at the ground and top than in the middle; it is covered with pricks similar to the prickly pear with which you are acquainted.[19]

After crossing the Colorado River near present-day Needles, California, the Smith expedition crossed the Mojave Desert, following a route similar to that used by Garcés half a century earlier. The party reached the San Bernardino Mountains, crossed them via Cajon Pass, and finally pushed on to the San Gabriel Mission, arriving on November 26, 1826.[20]

In May 1827 Smith and two companions, Silas Gobel and Robert Evans, began their eastward trek home in what would become the first Euroamerican penetration of present-day central eastern Nevada. Crossing the Sierra Nevada via Ebbetts Pass, the men moved down the eastern slope of the mountains by way of the east fork of the Carson River and the west fork of the Walker, entering the Great Basin just south of Walker Lake. They moved eastward between the Gabbs Valley and Pilot ranges and then around the southern end of the Shoshone and Toiyabe mountains and across the Toquima Mountains. Continuing eastward, they crossed the Monitor Range and struck Hot Creek, and then traveled along the base of the Pancake Range. Smith continued past the Big Spring at Lockes, crossing Railroad Valley and the north end of the Grant Range before heading northeastward through the White River Valley. The route continued over the Egan Range, across Steptoe Valley, and across the Schell Creek Range by way of Connors Pass. In Spring Valley Indians guided Smith to a spring, which was probably Layton Spring, several miles west of Osceola, where he obtained water and backtracked to one of his companions who was faltering. Smith then went over Sacramento Pass and northeast across Snake Valley before crossing into present-day Utah near Gandy, thus becoming the first known Euroamerican to pass through the vicinity of present Great Basin National Park. Moving north along the base of the Snake and Deep Creek ranges, the party finally reached the American encampment at Bear Lake on July 3, 1827.[21]

---

19. Copies of this letter are printed in Morgan, *Jedediah Smith and the Opening of the West*, Appendix A, pp. 334-37, and Dale, *Ashley-Smith Explorations and the Discovery of a Central Route to the Pacific*, pp. 186-94.

20. Morgan, *Jedediah Smith and the Opening of the West*, pp. 197-201. Smith's extraordinary experiences in California are discussed in pages 201-09 of this book.

21. Cline, *Exploring the Great Basin*, pp. 157-58, and McLane, "Exploration and Early Mapping in Eastern Nevada," p. 1.

Smith described the harsh environment that he encountered during his eastward trek across the Great Basin in two accounts. Having just crossed the present-day Nevada-Utah border near Gandy and moving north along the base of the Snake and Deep Creek ranges, Smith noted in his journal on June 22-24, 1827:

> North 25 Miles. My course was nearly parallel with a chain of hills on the west [Deep Creek Mountains], on the tops of which was some snow and from which ran a creek to the North East. On this creek [Thomas Creek] I encamped. The Country in the vicinity so much resembled that on the south side of the Salt Lake that for a while I was induced to believe that I was near that place. During the day I saw a good many Antelope but could not kill any. I however, killed 2 hares which when cooked at night we found much better than horse meat. June 23[d] N E 35 Miles. Moving on in the morning I kept down the creek on which we had encamped until it was lost in a small Lake. We then filled our horns and continued on our course, passing some brackish as well as some verry salt springs [Salt Wells], and leaving on the north of the latter part of the days travel a considerable Salt Plain [the Salt Desert, the northern reaches of which he had seen the year before]. Just before night I found water that was drinkable but continued on in hopes of finding better and was obliged to encamp without any. June 24th N E 40 Miles. I started verry early in the hopes of soon finding water. But ascending a high point of a hill I could discover nothing but sandy plains or dry Rocky Hills with the Exception of a snowy mountain off to the N E at the distan[c]e of 50 or 60 Miles [the Stansbury Range]. When I came down I durst not tell my men of the desolate prospect ahead but framed my story so as to discourage them as little as possible. I told them I saw something black at a distance, near which no doubt we would find water. While I had been up on the [hill] one of the horses gave out and had been left a short distance behind. I sent the men back to take the best of his flesh, for our supply was again nearly exhausted, whilst I would push forward in search of water. I went on a short distance and waited until they came up. They were much discouraged with the gloomy prospect but said all I could to enliven their hopes and told them in all probability we would soon find water. But the view ahead was almost hopeless. With our best exertion we pushed forward, walking as we had been for a long time over the soft sand. That kind of traveling is very tiresome to men in good health who can eat when and what they choose and drink as often as they desire, and to us worn down with hunger and fatigue and burning with thirst increased by the blazing sands it was almost insurportable. At about 4 O Clock we were obliged to stop on the side of a sand hill under the shade of a small Cedar. We dug holes in the sand and laid down in them for the purpose of cooling our heated bodies. After resting about an hour we resumed our wearysome journey, and traveled until 10 O Clock at night, when we laid down to take a little repose, previous to this and a short time after sun down I saw several turtle doves, and as I did not recollect of every having seen them more than 2 or 3 miles from water I spent more than an hour in looking for water, but it was in vain. [22]

In the aforementioned letter that Smith wrote to Clark on July 12, 1827, he elaborated further on the desolate and barren country that he had traversed. He observed:

> After traveling twenty days from the East side of *Mount Joseph*, I struck the S. W. corner of the Great Salt Lake, travelling over a country completely barren and destitute of game. We frequently travelled without water sometimes for two

22. Quoted in Morgan, *Jedediah Smith and the Opening of the West*, pp. 211-13.

> days over sandy deserts where there was no sign of vegetation and when we found water in some of the rocky hills, we most generally found some Indians who appeared the most miserable of the human race having nothing to subsist on, (nor any clothing) except grass seed, grasshoppers, &c. When we arrived at the Salt lake, we had but one horse and one mule remaining, which were so feeble & poor that they could scarce carry the little camp equipage which I had along; the balance of my horses I was compelled to eat as they gave out.[23]

The South West Expedition was significant in that it was the first crossing of the full width of the Great Basin, marking out a trail from the Great Salt Lake to the Pacific Coast first by a southern and then by a central route. Smith traversed this desolate region, crossing from one complicated drainage area to another over numerous mountains barriers as well as some of the most barren stretches of desert country that exist in the American Southwest.[24]

WESTWARD TRAILS AND EXPANSION

By 1830 almost all the streams of any size and importance as well as other physical characteristics of the Great Basin had been explored by the mountain men and fur trappers. Much of the Great Basin had been found to be an inhospitable region where trappers had been repulsed by its arid wastes. The paucity of fur-bearing and food-providing animals made operations difficult and unprofitable and led trappers to refer to it as "Starvation Country." The harsh environment of the Great Basin, together with the "scorched earth" policy of the Hudson's Bay Company, made the land of interior drainage less inviting to the trapper. In addition, more trappers were entering the field, resulting in greater competition for the gradually diminishing beaver harvests and forcing the mountain men to roam over larger areas in search of furs. Thus, after 1830 the Great Basin was no longer one of the principal trapping grounds in itself, but merely part of a region which was combed in quest of pelts. For these reasons many trappers left the mountains and entered other fields of endeavor.[25]

Old Spanish Trail

The mountain men were especially attracted by events in the American Southwest. After Mexico gained independence from Spain in 1821, friendly trade with Americans was invited. Development of the Santa Fe Trail from Independence, Missouri, to Santa Fe with its prairie commerce resulted in the further extension of trade in the American Southwest, and the

---

23. Copies of this letter are printed in Morgan, *Jedediah Smith and the Opening of the West*, Appendix A, pp. 334-37, and Dale, *Ashley-Smith Explorations and the Discovery of a Central Route to the Pacific*, pp. 186-94.

24. Cline, *Exploring the Great Basin*, p. 163, and Morgan, *Jedediah Smith and the Opening of the West*, pp. 7-9. Further data on the significance of Smith and his expedition may be found in Effie Mona Mack, *Nevada: A History of the State from the Earliest Times Through the Civil War* (Glendale, California, The Arthur H. Clark Company, 1936), pp. 66-67.

25. David Wishart, *The Fur Trade of the American West, 1807-1840: A Geographical Synthesis* (Lincoln and London, University of Nebraska Press, 1979), pp. 26-27.

possibility of expanding that trade to California became lucrative.[26] The course of the trail between Santa Fe and Los Angeles would become known as the Old Spanish Trail, the discussion of which is appropriate for this study since it traversed the southern portion of the Great Basin.

This trail, which had been envisioned in the late eighteenth century to serve as a link connecting Spain's settlements in New Mexico and California, reached its height during the 1830s and 1840s. Although never more than a trail for pack animals, it was practical as a route for such commerce during the spring and fall seasons. Annual caravans brought woolen blankets from New Mexico to be traded in California for horses and mules. A slave trade also flourished, whereby blankets from New Mexico and grains, hides, and animals from California were exchanged for Indian slaves in the Great Basin who were captured not only by unscrupulous Spanish and Mexican traders but also by renegade Ute bands.[27]

The Indian slave trade deserves further mention since it affected tribes living in the region of present-day eastern Nevada and western Utah. The promotion of slavery as part of the Spanish social system influenced all of the Indians on the northern borders of the new Spanish colonies. Equipped with horses, the Utes and Navajos raided other groups for slaves – usually taking young women and children – and selling them in the Spanish settlements of New Mexico and southern California. The Southern Paiutes were in the unfortunate position of living between the Ute raiders on the north and east, and the Navajos on the south. Western Shoshone groups, although less involved in the traffic, were prey to Ute raiders in the eastern areas of their territory. New Mexicans also participated in the trade either directly or indirectly as dealers with the Utes and Navajos.

The earliest documentation of the slave trade in the Great Basin is the description of an encounter in 1813 between Indians at Utah Lake and the Spanish traders Mauricio Arze and Lagos García. The trade flourished until 1850 when the Mormons, under Brigham Young's direction, managed to suppress it. Numerous documents attest that raiding or bargaining for slaves occurred around Utah Lake, in the Sevier River Valley, along the Old Spanish Trail, and elsewhere in present-day Utah and eastern Nevada. In addition to the mounted Navajo and Ute groups that participated in the slave trade expeditions were also outfitted for slave trading in New Mexican settlements, and some British and American fur trappers may also have engaged in the traffic as a sideline.

The Southern Paiutes and Western Shoshones were a major target of the slave raids. In 1839 it was reported that "Piutes" living near the Sevier River were "hunted in the spring of the year, when weak and helpless, by a certain class of men, and when taken, are fattened, carried to Santa Fe and sold as slaves during their minority." Female teenagers were valued more highly than their male counterparts. There are also documented instances of Mexicans, Navajos, or Utes trading jaded horses to the Southern Paiutes and Western Shoshones for children, whereupon the horses were most frequently eaten. Documentation suggests that the slave trade contributed to the timidity of the Southern Paiutes and Western Shoshones and their virtual absence from some heavily-traveled

---

26. Further information on the Santa Fe Trail may be found in Max L. Moorhead, ed., *Commerce of the Prairies by Joseph Gregg* (Norman, University of Oklahoma Press, 1954); Hobart E. Stocking, *The Road to Santa Fe* (New York, Hastings House, 1971); and R.L. Duffus, *The Santa Fe Trail* (Albuquerque, University of New Mexico, 1930).

27. Cline, *Exploring the Great Basin*, pp. 164-65; Leland Hargrave Creer, *The Founding of an Empire: The Exploration and Colonization of Utah, 1776-1856* (Salt Lake City, Bookcraft, 1947), pp. 31-39; and Delmont R. Oswald, "James P. Beckwourth," in *Trappers of the Far West: Sixteen Biographical Sketches*, ed. by LeRoy R. Hafen (Lincoln and London, University of Nebraska Press, 1983), p. 175.

areas. The slave trade may also have led to severe depopulation of their numbers since it was reported that "scarcely one-half of the Py-eed [Paiute] children are permitted to grow up in a band; and a large majority of these being males."[28]

The general course of the Old Spanish Trail on its eastern side had been pioneered by the Domínguez-Escalante Expedition in 1776. The section between the Green River of the Colorado River drainage system and the Sevier River in the Great Basin had been established by a subsequent Spanish exploration party led by Mauricio Arze and Lagos García in 1813. Jedediah Smith had extended the trail westward in 1826 when he passed southward to the Sevier and Beaver rivers, then proceeded to the Virgin River and continued down it to the Colorado. Near present Needles, California, Smith intersected the trail used by the Mojave Indians on their bartering expeditions to the Pacific Coast, this being the same trail used by the Garcés Expedition in 1776. Thus, the three most important expeditions in early Great Basin exploration traced the general course of the Old Spanish Trail and prepared a lane for barter and commerce through the desolate and barren stretches of the land of interior drainage.[29]

In August 1829 travel began over the general course of the Old Spanish Trail when a trapping party under Ewing Young set out from Taos to the head of the Salt River and then trapped down it to its junction with the Río Verde. Upon reaching the Colorado, the group continued to California over the Garcés trail.[30] That same year transportation and exchange of goods between New Mexico and California were begun by Antonio Armijo, using a slightly different route from the Old Spanish Trail. He struck both the Amargosa River of the Great Basin as well as the Mojave when crossing the desert between the Colorado River and the Sierra Nevada Mountains.[31]

The first party to journey over the entire distance of the Old Spanish Trail was led by William Wolfskill and George C. Yount during the winter of 1830-31. The two men were natives of Kentucky and North Carolina, respectively, who had operated as fur traders from a New Mexico base since the early 1820s. This trapping and trading party, consisting of twenty men, went from Abiquiu to the San Juan and Dolores rivers along the earlier Domínguez-Escalante route. The group then crossed the Green River and the Wasatch Mountains to reach the Sevier River and the Great Basin near Salina Canyon.

On the Sevier River the party encountered a group of Ute Indians, who, after receiving presents of knives, tobacco, beads, awls, and vermilion, gave the whites permission to hunt and trap throughout their territory. Yount, who was known to the Indians from previous visits, regaled the Indians with pompous words, speaking of the Great Father in Washington and his mighty guns, big cabins, and many braves. Yount described his encounter with the Utes to his biographer. Reportedly, he told the Indians that he was

> vice regent and son of the Great Spirit who rolls the sun, and whose pipe when smoking makes the clouds. Whose big gun makes the thunder. And whose rifle bullets and glittering arrows make the red lightning. Of these he could

---

28. Catherine S. and Don D. Fowler, "Notes on the History of the Southern Paiutes and Western Shoshonis," *Utah Historical Quarterly*, XXXIX (Spring 1971), 102-05.

29. Cline, *Exploring the Great Basin*, p. 165.

30. Joseph J. Hill, "Ewing Young in the Fur Trade of the Far Southwest, 1822-1834," *Oregon Historical Quarterly*, XXIV (March 1923), 1-35.

31. LeRoy R. and Ann W. Hafen, *The Old Spanish Trail* (Glendale, California, Arthur H. Clark, 1954), pp. 158-65.

> discourse till they fell flat on their faces, take the earth from under his moccasins and sprinkle it on their heads; and as he closed would rise upon their knees and worship him. Majestically would he raise them, or order Wolfskill to raise them upon their feet, bid them kiss his rifle, in token of respect for the Great Father at Washington and be seated at his side. The presents, which were the chief object of regard after all, and to obtain which they would worship anything, were distributed, and Yount permitted them to taste a morsel from his dish.[32]

The traders then continued to California, ascending the Sevier River via Clear Creek Fork, a variation of the Smith route. It is probable that they came out of the mountains by the canyon that debouches near Little Salt Lake.

The Old Spanish Trail was the first charted track across the Great Basin. The journeys of Ewing Young, Armijo, and most important, the Wolfskill-Yount party, mark the beginning of travel along an established trail from New Mexico to California. The increasing economic significance of the Pacific Slope gave impetus to travel westward, and, as a result, the Great Basin became a corridor to California.[33]

Emigrant Trails to California

The southern section of the Great Basin, through which the Old Spanish Trail passed, was not the only corridor to California. Between 1830 and 1850 thousands of emigrants would pass through the northern part of the Great Basin on their way to new homes in California. Spurred by the reports of mountain men and the dreams of empire espoused by promoters of the Manifest Destiny of the United States, interest in the West as a place for future settlement, particularly the fertile lands of California and Oregon, spread rapidly throughout the eastern part of the country. To many people the idea of moving beyond the Rocky Mountains had great appeal as a result of the continuing American pioneering spirit and of unstable economic conditions in the East brought on by the Panic of 1837. Thus, the stage was set for one of the greatest mass migrations in American history as thousands of people began the trek to the Pacific Slope. While many settlers followed the Oregon Trail to the Northwest, others took the southwesterly Overland Trail through the northern Great Basin to California. By 1850 the tide of settlers to California over this "highway" had swelled to enormous proportions.

The Overland Trail became the famous highroad of the West that followed the Humboldt River for some 300 miles, traversed the Forty-Mile Desert to the Truckee River, and then crossed the Sierra Nevada to the Central Valley in California. This route had the advantage of following a life-giving desert stream that cut through the numerous mountain ranges and barren desolation of the northern Great Basin, providing varying amounts of the necessities required by the California-bound travelers – water, wood for fuel, pasturage for livestock, and wild game for food.

An important section of the Overland Trail was explored and later established by Joseph R. Walker, a long-time fur trader, trapper, and trailsman of the West who was one of the leaders of the Walker-Bonneville Party in 1833-34. Although Jedediah Smith had previously crossed the Great Basin and Peter Skene Ogden and his successor, John Work, had explored the Humboldt River thoroughly, no Euroamerican up to that time had recorded

---

32. LeRoy R. Hafen, "Mountain Men Before the Mormons," *Utah Historical Quarterly*, XXVI (October 1958), 318-19, and Hafen and Hafen, *Old Spanish Trail*, p. 149.

33. Cline, *Exploring the Great Basin*, pp. 166-68.

movement southward to the Carson Sink and Walker River or, more importantly, had discovered a viable mountain pass over the Sierra Nevada. As a result of the Walker-Bonneville expedition, Benjamin Bonneville, the primary instigator of the party, produced two maps that contributed little new geographical knowledge of the Great Basin but are important nevertheless to the history of travel across the Great Basin for they showed that the Humboldt River was the best course to follow in a journey across the wide expanse.[34]

The adventures of the Walker-Bonneville Party, so ably presented in popular prose by Washington Irving, attracted the attention of many people living east of the Rocky Mountains. Such tales suggested possibilities of developing this virgin country. One person who was particularly fascinated by these thrilling stories was a young schoolteacher in Kansas territory named John Bidwell. Because of his enthusiastic interest for what lay beyond the Rockies, he was to lead the first overland emigrant train to California through the Great Basin in 1841 over a large section of the trail that the Walker-Bonneville Party had established.

The Bidwell-Bartleson Party, as it came to be known, reached the Central Valley of California in October 1841 after a harrowing journey of considerable hardship during which they had to chart their own course over wide stretches of the Great Basin. The significance of the party to the history of the Great Basin lies in the fact that it was the first group of emigrants who saw the Great Salt Lake and the Humboldt River as well as other physiographic features of the land of interior drainage. Although the party was forced to abandon its covered wagons near Pilot Peak on the western edge of the Great Salt Lake Desert, the members of the party were the first to bring such wagons into the present states of Utah and Nevada, and thus traversed a large part of the Great Basin by means of this wheeled vehicle. The wife and daughter of Benjamin Kelsey accompanied the group and thus were the first white women to enter the Great Basin. Of greater importance is the fact that the journey of this party revealed that the crossing of western America, even of some of the barren stretches of the Great Basin, could be accomplished by emigrants. Thus, the party set the stage for the great westward movement which was soon to follow.[35]

The stream of emigration to California which began with the Bidwell-Bartleson Party did not reach considerable proportions until 1849 with the advent of the California Gold Rush. During the 1840s the new trail to California was refined, the most notable changes being use of Donnor Pass in the Sierra Nevadas and the Hastings Cutoff, which diverted California-bound traffic south of the Great Salt Lake across the extensive salt flats of present-day Utah.[36] Among the early groups that followed the general Overland Trail were

---

34. For more information on the Walker-Bonneville Party, see Edgeley W. Todd, ed., *The Adventures of Captain Bonneville, U.S.A., in the Rocky Mountains and the Far West, Digested from His Journal by Washington Irving* (Norman, University of Oklahoma Press, 1961); Wishart, *Fur Trade of the American West*, pp. 152-56; Edgely W. Todd, "Benjamin L.E. Bonneville," and Ardis M. Walker, "Joseph R. Walker," in *Mountain Men and the Fur Trade*, V, 45-63 and 361-80, respectively; Cline, *Exploring the Great Basin*, pp. 168-80; Douglas Sloane Watson, *West Wind: The Life Story of Joseph Reddeford Walker, Knight of the Golden Horseshoe* (Los Angeles, 1934); and W.F. Wagner, ed., *The Narrative of Zenas Leonard* (New York, Burrows Brothers Company, 1904).

35. F.N. Fletcher, "Early Nevada: The Period of Exploration 1776-1848," in James G. Scrugham, ed., *Nevada: A Narrative of the Conquest of a Frontier Land* (3 vols., Chicago and New York, The American Historical Society, Inc., 1935), I, 59-68, and Cline, *Exploring the Great Basin*, pp. 180-86.

36. The Hastings Cutoff, opened in 1846, entered present Nevada south of Pilot Peak, continued over Silver Zone Pass and through Jasper Pass in the Pequop Mountains. The trail followed the east base of the Ruby Mountains before cutting south and crossing the Rubys via Overland Pass. Then it swung back north along Huntington Creek and the South Fork of the Humboldt River to the California Trail. McLane, "Exploration and Early Mapping in Eastern Nevada," p. 2.

the Walker-Chiles Party in 1843, the Stevens-Townsend-Murphy Company in 1844, and the Russell-Bryant and Donnor-Reed parties in 1847.[37]

While the Bidwell-Bartleson Party was making its historic trek to the Pacific Coast through the northern part of the Great Basin, the Workman-Rowland Party traveled from Santa Fe to Los Angeles over the Old Spanish Trail, thus becoming the first emigrant party to reach California by way of the southern approach. Although this trail never attained the importance of the Overland Trail, it had the advantage of avoiding the Sierra Nevadas, and the western segment was used by some emigrant groups in winter when snow closed the mountain passes. This artery would later become important for emigration purposes when the Mormons established settlements in Las Vegas and San Bernardino during the 1850s.[38]

In contrast to the Overland and Old Spanish trails the central route that traversed the Great Basin through the Snake Range was never used as an early corridor to California by emigrant groups. This was due to a variety of factors, including the lack of a permanent water supply and the obstacle of higher and more numerous mountain ranges that discouraged exploration.[39]

Early Exploration Surveys

Although the Great Basin became a corridor to California during the 1830s and 1840s, the emigrant trains using the Overland and Old Spanish trails did not gain any realistic understanding of the geographical nature of the land of interior drainage. Most of the emigrants held erroneous geographical conceptions, for in general they followed maps showing mythical rivers and were caught up primarily with the day-to-day dangers and hardships of the journey. It was not until 1844, the same year in which the Stevens-Townsend-Murphy Company crossed the Overland Trail, that John Charles Frémont, the sometimes enigmatic and romantic adventurer yet dynamic and scientific explorer, pathmarker, and topographer, made his important announcement while traversing much of the same region – the area lying between the Wasatch and Sierra Nevada mountains is a land of interior drainage. Hence Frémont gave this region the appellation "Great Basin."[40]

Earlier in 1841, while the Bidwell-Bartleson Party was still on the Overland Trail, an expedition led by Lieutenant Charles Wilkes of the U.S. Navy had been sent to the Pacific Ocean to visit the Oregon country and California. The expedition surveyed those parts of the Pacific Coast in an attempt to discover if a river of sizable magnitude entered the Pacific Ocean south of the Columbia. The results of this expedition were two maps which display a composite of the geographical conceptions that were then current, and thus they

---

37. Clifford L. Stott, *Search for Sanctuary: Brigham Young and the White Mountain Expedition* (Salt Lake City, University of Utah Press, 1984), p. 9.

38. Robert Starr Waite, "The Proposed Great Basin National Park: A Geographical Interpretation of the Southern Snake Range, Nevada (Unpublished Ph.D. dissertation, University of California, Los Angeles, 1974), Part II, pp. 502-03.

39. Ibid., Part II, p. 503. For more data on the trails to California, see Fletcher, "Early Nevada," I, 101-10, and Brooke D. Mordy and Donald L. McCaughey, *Nevada Historical Sites* (Reno, Desert Research Institute, 1968) pp. 229-34.

40. Cline, *Exploring the Great Basin*, p. 188. For a summary of Frémont's career and contributions to western exploration, see Allan Nevins, "A Record Filled With Sunlight," *American Heritage*, VII (June 1956), 12-15, 18-19, 106-07. Further historical perspective on Frémont's exploration in the Great Basin may be found in Bobby Gene Ramsey, "Scientific Exploration and Discovery in the Great Basin From 1831-1891 (Unpublished Ph.D. dissertation, Brigham Young University, 1972).

exhibited the general cartographic resources which existed at the time. Wilkes used the term "Great Sandy Desert" in the Great Basin with the legend, "The country is extremely Rocky and rough, the Rivers running through Clift Rocks."[41]

Not satisfied with these findings Congress commissioned another scientific expedition in 1842. This was the first expedition led by Frémont, a captain in the U.S. Army Corps of Topographical Engineers who was destined to become one of the most controversial figures in western American history. The expedition materialized through the efforts of Thomas Hart Benton, U.S. Senator from Missouri and father-in-law of Frémont, when he brought the matter of western territories before Congress in 1842. The expedition, which included Charles Preuss as topographer and Kit Carson, a long-time mountain man and scout, as guide, proceeded up the Platte River to the Sweetwater and reached South Pass on August 8, 1842, before exploring the Green River region and the Wind River mountain range.[42]

Of far greater importance to the history of the Great Basin was Frémont's Second Expedition, the ostensible object of which was to connect his explorations of 1842 with the Wilkes surveys along the Pacific Coast in 1841. The party left Kaw Landing (present-day Kansas City) on May 29, 1843, and followed up the northernmost fork of the Kansas River before reaching the Oregon Trail on the banks of the Sweetwater. Upon reaching South Pass, Frémont and his men journeyed to the Green River, thence to the Bear River of the Great Basin, and then proceeded down to Great Salt Lake. The party left the lake and went north to Fort Hall on the Snake River. The men proceeded to The Dalles, making an accurate survey of the emigrant trail to Oregon. Then Frémont turned south from the Columbia River reentering the Great Basin, this time in present-day south-central Oregon. Proceeding southward into what is now southeast Oregon and northwest Nevada, he struck the bodies of water now known as Klamath Lake and Warner Lake, pitching camp on December 26 near the forty-second parallel which now forms the boundary between the states of Oregon and Nevada. The party traveled through the Snake Creek, Granite Creek, and Black Rock deserts before reaching a curiosity he named Pyramid Lake. Following the Truckee River to near the present site of Wadsworth, Nevada, the group then marched southward to the Carson River. After crossing the Sierra Nevada to present Bridgeport Valley, California, the party recrossed the mountains via Carson Pass and viewed Lake Tahoe for the first time. After proceeding to Sutter's Fort in present Sacramento, California, the party crossed Tehachapi Pass and reached the Old Spanish Trail a few miles north of El Cajon Pass. The group followed the trail to the present site of Las Vegas and southwestern Utah and then moved north to reach the Sevier River and Utah Lake on May 24, 1844, before crossing the Wasatch Mountains through Spanish Fork Canyon enroute to the East.[43]

As the expedition moved northeastward from present-day Las Vegas toward the Sevier River and Sevier Lake it came within some 90 miles east of the Snake Mountains. In his report for that part of the journey during May 13-23, Frémont made the following notations:

> After we left the *Vegas* we had the gratification to be joined by the famous hunter and trapper, Mr. Joseph Walker . . . and who now became our guide.

---

41. Cline, *Exploring the Great Basin*, p. 205.

42. Ibid., pp. 208-09, and *Oregon and California: The Exploring Expedition to the Rocky Mountains, Oregon and California by Brevet Col. J.C. Frémont* (Buffalo, George H. Derby and Co., 1851), pp. 5-122.

43. Cline, *Exploring the Great Basin*, pp. 209-14. For more information on Frémont's Second Expedition, see M. Morgan Estergreen, Kit Carson: *A Portrait in Courage* (Norman, University of Oklahoma Press, 1962), pp. 101-22, and Allan Nevins, ed., *Narratives of Exploration and Adventure by John Charles Frémont* (New York, London, and Toronto, Longmans, Green & Co., 1956), pp. 308-426.

May 13th.– We remained one day at this noted place of rest and refreshment; and, resuming our progress in a northeastwardly direction, we descended into a broad valley, the water of which is tributary to Sevier Lake. The next day we came in sight of the Wah-satch range of mountains on the right, white with snow, and here forming the southeast part of the Great Basin. Sevier Lake, upon the waters of which we now were, belonged to the system of lakes in the eastern part of the basin – of which the Great Salt Lake and its southern limb, the Utah Lake, were the principal – toward the region of which we were now approaching. We travelled for several days in this direction, within the rim of the Great Basin, crossing little streams which bore to the left for Sevier Lake, and plainly seeing, by the changed aspect of the country, that we were entirely clear of the desert and approaching the regions which appertained to the system of the Rocky Mountains.

May 17th – After four hundred and forty miles of travelling on a trail which served for a road, we again found ourselves under the necessity of exploring a track through the wilderness. The Spanish trail had borne off to the southeast, crossing the Wah-satch range. Our course led to the northeast, along the foot of that range, and leaving it on the right. The mountain presented itself to us under the form of several ridges, rising one above the other, rocky, and wooded with pine and cedar; the last ridge covered with snow. Sevier River, flowing northwardly to the lake of the same name, collects its principal waters from this section of the Wah-satch chain.

We had now entered a region of great pastoral promise, abounding with fine streams; the rich bunch grass soil that would produce wheat, and indigenous flax – growing as if it had been sown. Consistent with the general character of its bordering mountains, this fertility of soil and vegetation does not extend far into the Great Basin. Mr. Joseph Walker, our guide, and who has more knowledge of these parts than any man I know, informed me that all the country to the left was unknown to him, and that even the *Digger* tribes, which frequented Lake Sevier, could tell him nothing bout it.

May 20th – We met a band of Utah Indians, headed by a chief who had obtained the American or English name of Walker, by which he is quoted and well known. They were all mounted, armed with rifles, and use their rifles well. The chief had a fusee, which he had carried slung, in addition to his rifle. They were journeying slowly toward the Spanish trail, to levy their usual tribute upon the great Californian caravan. They were robbers of a higher order than those of the desert. They conducted their depredations with form, and under the color of trade, and toll for passing though their country. Instead of attacking and killing, they affect to purchase – taking the horses they like, and giving something nominal in return. The chief was quite civil to me. He was personally acquainted with his namesake, our guide, who made my name known to him. He knew of my expedition of 1842; and, as tokens of friendship and proof that we had met, proposed an interchange of presents. We had no great store to choose out of; so he gave me a Mexican blanket, and I gave him a very fine one which I had obtained at Vancouver.

May 23d. – We reached Sevier River – the main tributary of the lake of the same name – which, deflecting from its northern course, here breaks from the mountains to enter the lake. it was really a fine river, from eight to twelve feet

deep; and, after searching in vain for a fordable place, we made little boats (or rather rafts) out of bulrushes, and ferried across.[44]

Frémont's encampment at Utah Lake near the end of the expedition is one of great significance in the history of the Great Basin as well as in the history of the entire West. It was here, while encamped near the place where the Domínguez-Escalante Expedition had stayed some 68 years earlier, that he came to the conclusion that the vast expanse between the Wasatch and Sierra Nevada mountains was a land of interior drainage, truly a "Great Basin" as he thus named it. One of the most important maps in the history of western American cartography was the product of this expedition – a map showing a void between the Wasatch and Sierra Nevada on which Frémont included a significant legend: "The Great Basin: Diameter 11° of latitude, 10° of longitude; elevation above the sea between 4,000 and 5,000 feet; surrounded by lofty mountains; contents almost unknown, but believed to be filled with rivers and lakes which have no communication with the sea, deserts and oases which have never been explored, and savage tribes which no traveler has seen or described."[45]

On August 16, 1845, Frémont set out on a third expedition to the West during which he made a survey of the Great Salt Lake, determined the most direct route to the Pacific Coast, and explored the country southwest of the Sierra Nevada. After making observations of the Great Salt Lake in September and October, Frémont and his party made the first crossing of the Great Salt Lake Desert to Pilot Peak in late October before crossing the drainage basin of the Humboldt River, which he named in honor of Baron Alexander von Humboldt, the renowned German geographer who first published the results of the Escalante-Domínguez Expedition in his four-volume *Political Essay on the Kingdom of New Spain.*

Near Whitton Springs Frémont divided his party into two groups in order to more thoroughly explore the region. The larger party continued westward along the Humboldt River under the leadership of Edward Kern with guidance from Joseph R. Walker. Frémont, with a party of ten men including several Delaware Indians, continued in a southwesterly direction around Spruce Mountain and wandered through the northern end of the Medicine Range before crossing the gravel bar between Franklin and Ruby lakes. The party crossed the Ruby Mountains at Harrison Pass, thus coming within 100 miles of the Snake Range. Continuing westward, he passed north of present-day Eureka, traversed the valley on the east side of the Toiyabe Range, and continued on to Walker Lake where he met the other party in November, naming the body of water in Walker's honor. In his description of the trek across modern Nevada, Frémont wrote:

> I took leave of the main party and set out on a line westward directly across the basin, the look of the country inducing me to turn somewhat to the south. We lost no time in pressing forward; but the tortuous course rendered unavoidable by the necessity of using just such passes as the mountains gave,

---

44. John Charles Frémont, *Memoirs of My Life* (Chicago and New York, Belford, Clarke & Company, 1887), pp. 384-87. Frémont's report may also be found in "A Report of the Exploring Expedition to Oregon and North California in the Years 1843-44," in *Report of the Exploring Expedition to the Rocky Mountains by John Charles Frémont* (Readex Microprint Corporation, 1966), pp. 270-73.

45. "A Report of the Exploring Expedition to Oregon and North California in the Years 1843-44," in *Report of the Exploring Expedition to the Rocky Mountains by John Charles Frémont*, pp. 274-77, and Map of an Exploring Expedition to the Rocky Mountains in the Year 1842 and to Oregon and North California in the Years 1843-44 by Brevet Capt. J.C. Frémont of the Corps of Topographical Engineers Under the Orders of Col. J.J. Abert, Chief of the Topographical Bureau, Manuscripts Division, Bancroft Library, University of California, Berkeley. See Appendix A for the complete text of Frémont's observations on the Great Basin written at Utah Lake on May 24, 1844.

and in searching for grass and water, greatly lengthened our road. Still, it gave me knowledge of the country.

We succeeded in finding always good camping grounds, usually availing ourselves of the Indian trails which skirted the foot of the ridges. When well marked, showing use, these never failed to lead to water, and the larger the trail, the more abundant the water. This we always found at the edge of the mountain, generally in some ravine, and quickly sinking into the ground, never reaching the valley except in seasons of rain. Doubtless artesian wells would find it and make fertile these valleys, which now are dry and barren.

Traveling along the foot of a mountain on one of these trails, we discovered a light smoke rising from a ravine, and riding quietly up, found a single Indian standing before a little sagebrush fire over which was hanging a small earthen pot filled with sage-bush squirrels. Another bunch of squirrels lay near it, and close by were his bow and arrows. He was deep in a brown study, thinking perhaps of some game trail which he had seen and intended to follow that afternoon, and did not see or hear us until we were directly upon him, his absorbed thoughts and the sides of the ravine cutting off sounds. Escape for him was not possible and he tried to seem pleased, but his convulsive start and wild look around showed that he thought his end had come. And so it would – abruptly – had the Delawares been alone. With a deprecating smile he offered us part of his pot-au-fen and his bunch of squirrels. I reassured him with a friendly shake of the hand and a trifling gift. He was a good-looking young man, well made, as these Indians usually are, and naked as a worm.

A day or two after we saw mountain sheep for the first time in crossing the basin. None were killed, but that afternoon Carson killed an antelope. That day we traveled late, making for the point of a wooded mountain where we had expected to find water, but on reaching it found only the dry bed of a creek where there was sometimes running water. It was too late to go farther and I turned up the creek bed, taking the chance to find it above, as the mountain looked promising. Well up toward the top of the mountain, nearly two thousand feet above the plain, we came upon a spring where the little basin afforded enough for careful use. A bench of the mountain near by made a good camping ground, for the November nights were cool and newly fallen snow already marked out the higher ridges of the mountains. With grass abundant, and pine wood and cedars to keep up the night fires, we were well provided for.[46]

After the rendezvous at Walker Lake the expedition again divided into two groups which crossed the Sierra Nevadas at Donnor and Walker passes to enter the Central Valley of California. The trip was hurried because Frémont's major purpose was to make a military reconnaissance in California and to assist the American settlers in the event hostilities broke out with Mexico.[47]

The Bear Flag Revolt and subsequent developments prevented Frémont from writing a report of his third expedition such as had followed the first and second. Thus, this expedition across the Great Basin has not received the attention it deserves. In making this trek, however, he had blazed the most feasible trail of the time across present-day

---

46. Nevins, ed., *Narratives of Exploration and Adventure*, pp. 449-51.

47. The remainder of the expedition, including Frémont's exploits in California, are discussed at length in Estergreen, *Kit Carson*, pp. 129-51.

Nevada. Prior to this time maps and geographic texts had represented the entire Great Basin, from the Great Salt Lake to the Sierras, as a sandy barren plain without water or grass. Frémont proved, as he wrote to his wife, that instead of being a plain, the region was

> traversed by parallel ranges of mountains, their summits white with snow (October), while below, the valleys had none. Instead of a barren country, the mountains were covered with grasses of the best quality, wooded with several varieties of trees, and containing more deer and mountain sheep than we had seen in any previous part of our voyage.[48]

The significance of the third expedition by Frémont has been ably described by Edwin L. Sabin in his *Kit Carson Days*. He noted:

> The map submitted by Frémont in 1848, based upon his explorations of 1845, was very different from his map of the Great Basin of 1844. Where much had been white, save for the arching legend "Unknown," now much was etched with physical symbols and place names. And although the Frémont southern route was improved upon and shortened by later explorations, although, in consequence of the California troubles, his feat of 1845 received less notice by the world and was less exploited by himself than his previous feats, he really pioneered a permanent feasible trail between the Salt Lake and Northern California. Moreover, he and his stalwarts were the first white men, as he rightfully asserts, to make a survey of this, the prospector's end of Nevada, long thereafter to be terra incognita save to the emigrant, the stage, the pack animals, the Mormon station-keepers, the treasure delver, and the wandering Indian.[49]

Frémont, who would make east-west crossings of the Rocky Mountains and the Great Basin to California in 1848-49 and 1853-54 to search for feasible transcontinental railroad routes, would become known as one of the great explorers of the American West. While little of his exploratory work was accomplished in regions not previously visited by Euroamericans, he is celebrated in the history of exploration as the first person to write an accurate account of the general physical features of the region between South Pass and the Pacific Ocean. His descriptive narrative of the best routes across the Great Basin and of the passes over the Sierra Nevada Mountains, combined with his glowing accounts of California, did much to stimulate emigration into that area and show that Frémont was a geographer with a real understanding of the concept of a region as a natural unit. While his surveys of South Pass, the Great Salt Lake, the Humboldt River, and Donnor Pass were valuable additions to geographical knowledge, his greatest scientific achievement was the discovery of the true nature of the Great Basin of North America.[50]

---

48. Quoted in Allan Nevins, *Frémont: Pathmarker of the West* (New York, London, and Toronto, Longmans, Green and Co., 1955), pp. 213.

49. Edwin L. Sabin, *Kit Carson Days: 1809-1868* (2 vols., Chicago, A.C. McClurg and Company, 1914), I, 396-97. Frémont accompanied his 1848 map with a *Geographical Memoir Upon Upper California In Illustration of His Map of Oregon and California*. A copy of the portion of this work dealing with the Great Basin may be seen in Appendix B.

50. Cline, *Exploring the Great Basin*, pp. 215-16.

CHAPTER THREE
MORMON EXPLORATION AND SETTLEMENT DURING THE 1850s

The first permanent Euroamerican colonization efforts in the Great Basin commenced with the arrival of the Mormon pioneers in the Great Salt Lake Valley on July 24, 1847.[1] Under the leadership of Brigham Young these early settlers went west in search of sanctuary where they could find religious freedom and escape the persecution they had endured in the East and Midwest since the early 1830s. As Mormon settlers continued to stream into Great Salt Lake Valley they built their first settlements along the fertile base of the Wasatch Mountains. By the mid-1850s some forty settlements had been founded from Cache Valley in the north to Washington in the south. In addition, the Mormons had fanned out, establishing the distant settlements of Carson Valley at the foot of the Sierra Nevada, San Bernardino, Las Vegas, and Fort Lemhi in present-day Idaho. Among the reasons for establishment of these colonies were: (1) relief of local population pressure in the Great Salt Lake Valley; (2) occupation of good agricultural land to provide increasing foodstuffs for the growing Mormon population; (3) occupation of strategic points commanding the entrances to the intermountain country; (4) conversion and instruction of the Indians; and (5) production of various commodities such as lead and copper.[2]

By the mid-1850s reports of a strange white mountain west of present-day Fillmore, Utah, had been carried into the Mormon settlements by desert Indian tribes. In 1855 Brigham Young decided to open an Indian mission in the vicinity of White Mountain, selecting Bishop David Evans of Lehi to lead the expedition and plant the settlement.[3] Near Fillmore Evans divided the 30-40 elders who had been assigned to the mission. Those with the stronger horses were to accompany him in selecting a mission site, while the others were instructed to go to Beaver Valley and plant a crop. The White Mountain Mission expedition is significant to this study since it produced the first written record of exploration in present-day Great Basin National Park.[4]

Eleven White Mountain missionaries left Fillmore with Evans on May 28, accompanied by two Pahvant Ute Indians they hired as guides to take them across the desert to the west. By way of Clear Lake, the Sevier River, Antelope Springs, and what is now called Dome Canyon, they made their way into what they called Little Desert Valley, now White Valley. The party crossed what it called the Antelope Hills [Confusion Range] into "Grease Wood Valley" [Snake Valley] on the modern Utah-Nevada border, arriving at "Mound Springs" [Knoll Springs].[5]

After leaving the springs the men traveled in a southerly direction some ten miles before coming on June 1 to "a beautiful creek" which they named "Snipe Creek" [Snake Creek]. Here was "a moist bottom land, producing the wire grass, rushes, and broad leaf grass."

---

1. A summary of the events surrounding Mormon settlement in Great Salt Lake Valley may be seen in Ray Allen Billington, *Westward Expansion: A History of the American Frontier* (New York, The Macmillan Company, 1949), pp. 532-49.

2. Richard D. Poll, ed., *Utah's History* (Provo, Brigham Young University Press, 1978), pp. 141-49.

3. The White Mountain Mission was named after present-day Crystal Peak, a unique sandstone mountain in the Confusion Range in Millard County, Utah, which appears white in contrast to the surrounding mountains.

4. Wesley R. Law, "Mormon Indian Missions – 1855" (Unpublished M.S. thesis, Brigham Young University, 1959), p. 81.

5. Wheat, *Mapping the Transmississippi West*, I, 121.

According to Ezra Granger Williams, who wrote a report to Heber C. Kimball on June 11, 1855, describing the expedition, the men

> camped here for the night to recruit our animals. They enjoyed it well, this being the first place on the route that they seemed willing to stay. Previous to this time we have had to watch them very closely to keep them from retreating.

On June 2 the party left "Snipe Creek" and "traveled a little south of west to the base of the Pe-up Mountain, [Wheeler Peak] as the Indians called it, signifying "big mountain." As they approached Pe-up Mountain on June 2 Williams wrote:

> This is a steady inclined plain of about fifteen miles, covered with sage and greasewood. Soil clay, alkali, and gravelly and nearer the mountain stone. The north part of this valley, the soil is very light, like ashes, and so much charged with alkali that it is rendered useless for grass or culture; here we found several excellent springs, named Mountain Springs.

After camping for the night the men decided "to ascend this mountain [Wheeler Peak] and thereby command a view of the whole country round about at a glance." Williams described an encounter with local Indians as the party prepared to climb the mountain:

> Accordingly, Brothers Evans, Ray S. Nebeker, Geo. Nebeker, Collet and myself, with Nioquitch, our guide, set out early in the morning. We rode our horses some three or four miles, sent the horses back to camp. I ought to have named that there were two Indians came to our camp at Snipe Creek; some connection of Nioquitch and a young man of the Snake digger tribe. They seemed quite pleased with us and stayed in camp with us, and in the morning went for others to come to us. They came to us at Mountain Springs, but no others came; they started for the Snakes with us on our way to the mountain. They turned to go over a ridge, then an Indian called to them from a high rocky peak. He was answered by Nioquitch, and after a long persuasion, to come down to us, he came down the craggy rocks and crossed the creek. He then had a fair view of us, as he looked up and came to a halt stand at us, half turned round as if ready to run. Our guide chided him somewhat, called him a fool and at last prevailed on him to come to us, by going to him and forcing him by the arm till Brother Evans reached him. We shook hands with him and gave him some crackers and dried meat. He soon became conscious that we were not going to hurt him. He talked quite freely with earnestness and oratory, and finally said he would get his men (as he proved to be a chief) and come to our camp. We parted. He built a large smoke to call his nation together and came to camp. He was well treated; he enjoyed it. He said he was willing to have us come among them and even desired us to come and improve their land.

After this encounter the men began their ascent. Williams elaborated on the climb:

> We started on up the mountain. Brothers Evans and Collet found it too hard for them after getting up half way and returned to camp and found this Snake chief in camp with some others of his band. We were the first white folks they ever saw. The rest of us proceeded up the mountain and after traveling some distance above all vegetation, including over a pile of rocks, I being ahead, discovered a roll of buckskin, and then a little to the right was an old squaw hid behind a rock. She seemed a good deal frightened. I called to our guide who talked with her. She talked and laughed quite cheerfully. We passed on and

at last gained the summit. I tell you we were high up in the world; the air was as light and buoyant. We felt first rate, but grew very tired, as it was a hard and a long climb. We now needed a telescope to discern objects, as far as the way was open to our view, but the lenses of our eyes were not strong enough to discern objects as far as we could like. We were then nearer the valley on the west side of the mountain, but were so high up and the atmosphere being a little smoky, we could not form an opinion as to the soil and vegetation, whether it was grass or greaseweed, but looked like a very pretty valley, with snow capped mountains on the east and west. We could see mountain after mountain to the west and looked as though there might be a better prospect of good valleys in that direction or to the southwest, but our guides seem to be unwilling to go farther. This peak was named Williams Peak,[6] as I was the first white man that gained its exalted summit. Brother Geo. Nebeker discovered a lake at the head of the canyon below, named Lake George. There is still another lake further down the canyon. It occupies about an acre or more of ground. We started down the peak in the direction of this lake. We traveled down on rocks, sometimes letting ourselves down from rock to rock with care to be right side up and finally came down on a bed of snow that laid on the north side of the mountain. The timber below presented a curious appearance, the most of which was pinion pine, very low and from three to four feet thick. They were divested of their covering, with the exception of a small strip on the north side of the trees, and on the top a little green foliage, the tops and south of the trees being bare and very light colored. I couldn't think of anything else to compare them to than a canyon full of elk. After long and tedious descent, we came among these pines and to the lake with pure cold water, and snow on the north of it, two and three feet deep. Little further down we came to fir poplar, and the tall, slim pines of moderate size. We noticed some fine poles, but they are too far up the canyon to reach them with team for a long time yet. Still farther down we came to the canyon stream. I was anxious to see its fountain head, but have not time to look about much. This is large stream, somewhat larger than City Creek, and affords much more water. We now came to the mountain mahogany forest, the largest and finest I ever saw. It is situated on the north side of the canyon, with a spontaneous growth of bunch grass. Beneath it is quite steep, but not so steep as I have seen orchards upon. They present an appearance of as old an orchard as any I ever saw. This extends two or three miles to the mouth of the canyon. There are several large trees at the mouth of the canyon, something like the White Pine. We got back to camp about five or six o'clock, pretty well exhausted, having spent but little time for rest.

---

6. Wheeler Peak has had a variety of names since the Mormons gave the mountain its first Euroamerican appellation in 1855. During a military reconnaissance through the Great Basin in 1855 Lieutenant Colonel Edward J. Steptoe named the mountain in honor of Jefferson Davis, then Secretary of War under President Franklin Pierce and later President of the Confederate States of America during the Civil War. Four years later in 1859 James H. Simpson named the mountain Union Peak, apparently because he thought the appellation more appropriate as the nation edged toward war. For many years thereafter, however, the mountain was known locally as Jeff Davis Peak. It is said that two miners, while exploring the area either during or soon after the Civil War, named the two spires forming the summit of the mountain Jeff Davis and Lincoln peaks, respectively, because one was born in the South and the other in the North. In 1869 the mountain was named for George M. Wheeler, who was conducting extensive military surveys in the region. Local settlers, however, generally referred to the mountain as Jeff Davis Peak for several decades thereafter. U.S. Army, Engineer Department, *Report Upon United States Geographical Surveys West of the One Hundredth Meridian, in charge of Capt. Geo. M. Wheeler, Corps of Engineers, U.S. Army, Under the Direction of the Chief of Engineers, U.S. Army* (Washington, Government Printing Office, 1889), Vol. I – Geographical Report, pp. 29-30, and *Fifth Annual Report of the United States Geological Survey to the Secretary of the Interior, 1883-84* (Washington, Government Printing Office, 1885), p. 342.

On June 4 the party traveled southeast along what is now known as Snake Creek for "some three or four miles." Here at the site of present-day Garrison, Utah, the men decided to establish a station. In his report Williams observed:

> Came to rich soil, plenty grass, rushes and red clover, the leaf of which is long and narrow; there are several good springs here, they probably arise from the sinking of the canyon stream. This is the place picked for our station. We nooned here and traveled some fifteen miles further southeast to Meadow Creek. About half way we crossed some pretty good land that was densely covered with large greasewood. We expect to clear this off to sow our grain on and water it from Meadow Creek. We camped on Meadow Creek, just below is a small lake, and above us is a meadow, some ten miles in length and average two in width, with several species of grass just fit for cutting; that is, a good portion of it.

The following day, on June 5, some of the men went hunting while others did further exploring. Williams noted:

> No game got today. On our way here yesterday some three or four of the natives followed on after us, and on our way we killed a wild cat, a large snake, about four feet long, and two rabbits. They took out the entrails of the wild cat and rabbits, dug open an ant hill; put in the entrails, built a fire over them, cooked them and ate them, then cooked the rabbits, snake and wild cat, all but the back bone, and devoured all that evening. They had the back bone of the cat next morning, and some contributions from our company in the way of crackers, etc.

The men reached the foot of White Mountain on June 6. Here they halted to

> gaze at the mysterious wonder which was only known by a faint, meager description by the Indians. This mountain is a white sandstone rock, interspersed with bastard diamonds. . . . These small diamonds almost cover the ground for some distance before we reach the mountain, so much so as to dazzle the eye of the traveler on a sunny day. There are some who say they have been to the White Mountain, but I think not excepting the red men. I claim that I was the first white man who ever stepped upon it and I have been the highest up its rugged slopes.[7]

The exploration party arrived back in Fillmore on June 11 where men were waiting who had been sent to plant crops in Beaver Valley. Those men reported that the valley was "the poorest they had seen," and as a result had made no effort toward planting. Not convinced of their findings, Evans went to examine the valley himself. He too could find no suitable spot for farming and thus decided

> to cross the desert with . . . [the] wagons and go to building a fort until time to put in a crop for the fall. I commenced to inquire for spades and shovels and found there was but three or four in the whole company. . . . I therefore seen at once that I could neither build fort or farm. I thought that under considerations of this kind it was better for us to go home and get up the kind

---

7. Ezra Granger Williams to Heber C. Kimball, June 11, 1855, Journal History of the Church, June 11, 1855, Archives, Church of Jesus Christ of the Latter Day Saints, Salt Lake City, Utah (hereinafter referred to as LDS Archives). A copy of this letter was found in U.S. Forest Service files provided to the National Park Service after establishment of Great Basin National Park.

> of a outfit that we wanted both to fort and to farm and go back in the fall prepared to put in fall crops and build a fort.[8]

News of the White Mountain Mission reached Brigham Young. Discouraged by its prospects, he wrote to the elders at Las Vegas on July 31:

> We will probably abandon the White Mountain Mission, as the elders have returned from that place, and send them to strengthen the Elk Mountain Mission on Grand River.

However, attempts were made to revive interest in the White Mountain Mission in late August. This is shown in a letter written by Heber C. Kimball to Franklin D. Richards:

> David Evans, that headed the mission to the White Mountain south, had returned, rather giving up their mission. We called upon them last Sabbath to make preparations and return back again in two weeks, and build a fort, etc., as there are many Lamanites in that region.[9]

There is no indication that a further attempt was made to establish the mission. Nevertheless, the party had explored a previously unknown region. Because of the difficult accessibility of this area Mormon officials would send a 100-man exploration company there in 1858 as part of Brigham Young's quest for a refuge in the White Mountain country for the embattled Latter Day Saints.

During the intervening three years there was some Mormon activity in the White Mountain country, a term which had come to mean the entire desert region west of Utah's southern settlements. In 1857, for instance, Chauncey Webb, a Mormon, tracked his stolen horses into Snake Valley where he treated with a band of hostile Indians for the return of his herd. Mormon punitive expeditions were also launched in the western deserts in an unsuccessful bid to capture the murderers of the Gunnison Party in 1853 (this topic will be discussed later in this study). Ironically, the Pahvant Ute war chief Mashoquab, the one generally blamed for the massacre, was Webb's guide in 1857, and the following year he guided the White Mountain Expedition over some of the same ground.[10]

Brigham Young and his associates were far from satisfied that the potentialities of the largely unknown desert country west of their southern settlements had been investigated satisfactorily, and sooner or later they would undoubtedly have ordered new explorations. As it happened, their hand was forced by the Utah Expedition, a 2,500-man detachment of U.S. Army troops under the command of Colonel Albert Sidney Johnston sent to suppress a supposed rebellion in Utah Territory in 1857-58.[11] Young's first impulse was to resist the troops, and he began to call Mormons in outlying settlements back to Salt Lake Valley to help defend the area against the army and to provide for their safety so they would not be left more vulnerable to attack in remote areas. In the event that these defense efforts failed Young became enamored of the idea that somewhere in the West there might exist an oasis area to which the Mormons could retreat before the troops, and if necessary carry on guerrilla warfare from that desert stronghold. As a result, the White

---

8. David Evans, "Report of the White Mountain Mission," July 17, 1855, Journal History of the Church, July 17, 1855, LDS Archives. Portions of this letter are quoted in Law, "Mormon Indian Missions – 1855," p. 82.

9. The text of both letters may be found in Law, "Mormon Indian Missions – 1855," p. 83.

10. Stott, *Search for Sanctuary*, p. 16

11. Poll, ed., *Utah's History*, pp. 165-70.

Mountain country and contiguous territory were to be explored thoroughly by what became known as the White Mountain Expedition.[12]

Two principal exploring parties were organized for the White Mountain Expedition. One was assembled in the more northerly settlements of Utah and set out from Provo on March 20, 1858. This party was led by George Washington Bean, an accomplished 26-year-old Indian interpreter, explorer, guide, and veteran of the Las Vegas Indian Mission. Another prominent member of this group was Edson Barney, a 51-year-old veteran of the Las Vegas Indian Mission and recent captain of the Nauvoo Legion. The other party, led by William H. Dame, was organized in the southern settlements a month later, and rendezvoused at Iron Spring west of present-day Cedar City on April 23. The Dame group was directed to explore west and north until it made contact with the Bean company.[13]

The task of the White Mountain Expedition and the sense of urgency under which it was undertaken was ably described by Bean in his autobiography some twenty years later. He stated:

> About Mar. 1st [1858] Prest. Young called on me to make up a small company and proceed to explore the Desert regions west of Fillmore & Beaver to find hiding places for the people to flee to, and at the same time all north of Utah Valley was to move everything of value except real pty. & improvements and get south before the Johnson Army arrived. Instructions were given that SL City & every place was to be burned & all property destroyed if it became necessary.[14]

The 104-man contingent under Bean was "fitted out with animals, etc. for exploring, farming, etc." and took much the same route west that had been used by the missionaries in 1855. The party left Cedar Springs near present-day Holden, Utah, on April 3. According to Bean's report to Brigham Young on June 7 the group

> started across the valley in a south westerly direction, to the Sevier River. We found the river bad crossing, deep with quicksand. We followed the river 15 miles and then struck west to Antelope Springs, 35 miles. Here we found good grass and water for small companies. We then passed through Cache [Dome] Canyon, which has a complete wall of rocks on each side. This canyon is about five miles long and from 50 to 200 yards wide; thence across Saleratus [White] Valley and over a range of low mountains into Long [Snake] Valley, then across it, thence south west to Snake Creek, a small stream running east from the White [Snake] Mountains.

Here on the present site of Garrison, Utah, the Bean party found the best, if not the only, prospect for a settlement. Bean stated:

---

12. Wheat, *Mapping the Transmississippi West*, IV, 122.

13. *Ibid.*, pp. 122-23; Stott, *Search for Sanctuary*, pp. 67-79, 84-85; Harry C. Dees, ed., "The Journal of George W. Bean," *Nevada Historical Society Quarterly*, XV (Fall 1972), 2-29; "Biographical Sketch of Edson Barney," LDS Archives; and Flora Diana Bean Horne, comp., *Autobiography of George Washington Bean: A Utah Pioneer of 1847 and His Family Records* (Salt Lake City, Utah Printing Company, 1945).

14. Autobiography, George Washington Bean, 1831-78, George Washington Bean Journals, Special Collections – Manuscripts, Harold B. Lee Library, Brigham Young University, Provo, Utah. In 1945 an autobiography of Bean was compiled by Flora Diana Bean Horine and printed in Salt Lake City. The portion of this work relating to the White Mountain Expedition may be seen in Appendix C.

> Here we found pretty good land and sufficient water to justify making a small settlement. The best of pine timbers within a few miles, grass not very convenient. This point is about one hundred and fifty miles from Cedar Springs. There is also a stream coming from the south some three feet deep, and five feet wide; it sinks just below where we located a farm, between it and Snake Creek; it rises from springs about 25 miles from that point and there are beautiful meadow spots on it. Here we left 45 men to carry on farming, herding, etc.

To facilitate the founding of the settlement Edson Barney was elected president of the mission.

After leaving the 45 men at the so-called Snake Creek Farm, Bean divided the remainder of his group "into two companies for exploring, one going north west and the other south west." Bean, who led the latter group over Sacramento Pass before crossing Spring Valley, climbing over the Schell Creek Range via Cooper Canyon and Steptoe Creek, and following the White River to Pahranagat Valley, observed:

> We, of the latter party, crossed two valleys to the rim of the Great Basin, exploring right and left, for springs and streams which we found at convenient distances. Plenty of grass and wood on the mountains, but the vallies were barren. The former party found some three or four streams of water and some land suitable for farming purposes; also grass, wood and timber convenient; but this lay too far north to settle according to our present instructions from Pres. Young. We crossed the rim of the Basin and explored three vallies west supposed to be the heads of the Muddy River. These valleys slope to the south west, are warmer than any other. We found the northern parts are pretty well supplied for camping purposes, with grass and springs of water at the bases of the mountains. In the Middle Valley we met with Col. [William H.] Dame with a company from Iron County on an exploring tour. At the western part of our explorations we met with Indians who informed us that we were on the borders of a great desert between us and the Sierra Nevadas. We took observations from the highest peaks on this tract of desert, which served to strengthen our faith in these statements. This point is about three hundred and thirty miles from Cedar Springs by our route of travel, and probably about two hundred and twenty five west in a straight line. Upon conferring with Col. Dame in relation to further explorations, we divided the explored country south east of this point, that we might more fully explore this remaining portion. Col. Dame went south south east and our party east south east. He took with him about 28 men of our party, with a view of locating them in a suitable valley for farming purposes. We traveled in the nearest possible direction for Beaver Canyon, finding grass and water at convenient distances on the mountains; also plenty of wood; but no land suitable for farming. The longest distance without water was 50 miles. We struck the Beaver River about 16 miles below the Canyon. Lower Beaver Valley contains a great amount of good farming land; there is grass and wood in abundance. We traveled up the river bottom and through the canyon. The crossings were very deep and dangerous for wagons. We passed through without any serious accidents and arrived at Beaver City, May 31st, having traveled about 800 miles in a country never before trod by white men, so far as we have any knowledge.
>
> In the course of our travels, we crossed seven ranges of mountains and the same number of valleys, the latter averaging from 10 to 30 miles in width, and from 15 to 100 miles long; their general course is from north to south. We also discovered that, what has generally been considered to be one great basin,

consists of several smaller basins, without connection with each other, except by a junction of their respective rims.

Bean went on to describe in considerable detail a cave which is west of the Schell Creek Range in Cave Valley and the Indians encountered by the party during its trek. He noted:

> In the first valley west of the rim is discovered a large cave having numerous smaller branches. The main cave is half a mile in length and varying in breadth from five to sixty feet. The smaller caves or branches are from ten feet to one hundred yards in length and from ten to twenty-five feet wide; they are from seven to twenty-five feet high. The first half is perfectly dry, the remainder have a damp clayey bottom. And we found three pools of water, cold but having a mineral taste. There were thousands of tracks of human beings, also the appearance of fires being lighted in many places, through the entire length of the main cave. There was also the track of a wild animal, supposed to be that of a Wolverine. The air in most parts of the cave was good, but rather warm in some places. The entrance was about four feet high and six feet in breadth. The mountain over the cave is low and of solid rock, probably not more than eighteen to twenty feet from the natural ceiling of the cave. The Indians in the immediate neighborhood, for generations past (according to their own statements) have not had the hardihood to enter this cave, but when they saw us go in and stop about an hour and return in safety, we prevailed upon one brave to accompany us on our second exploration. They have a legend, that two squaws went into the cave, a long time ago, and remained six months. They went, in perfect nudity and returned dressed in fine buckskin and reported they had found a large and beautiful valley inside, clothed, with vegetation, timber, water, and filled with game of the choicest species. Also, a band of Indians in an advanced state of civilization, being dressed like white men. They assert the tracks we found were made by these subterranean inhabitants. I am satisfied they were made by Indians in former times, going into the cave to get clay to make earthenware, as numerous pieces of broken ware are scattered over different portions of the country. It was probably a tribe called Moquis (or white Indians of the Colorado valley); as we learned they once inhabited this country.
>
> The Indians who inhabit this region are scattered. We found a few on every range of mountains in a most abject state of poverty, being almost naked and living on such roots, reptiles and insects as they can gather. They looked as poor and as weak as a man who had suffered a month's sickness. The most of them call themselves Shoshones. They talk the Digger tongue. A few in the south are Predes who exist in constant dread of the Tosanwick or White Knifes, Pahantes and Utes, who rob them of their squaws and children, from time to time. They seemed much pleased on becoming acquainted with us, although at first they were so shy that we were compelled to follow them with horses till they could run no further, in order to get to talk to them. They desired us to continue with them.[15]

The aforementioned southern wing of the White Mountain Expedition under the leadership of Dame was known as the Southern Exploring Company. Comprised of 66 men principally from Parowan, Cedar City, and Beaver, the party left Parowan on April 23. By early May

---

15. Report of Geo. W. Bean's Explorations in the South Western Deserts of Utah Territory, as given by himself to Pres. Young, June 7, 1858, Provo City, Utah Co., Utah, Manuscript History of the Church, Brigham Young Period, 1844-77, LDS Archives. A copy of this report was in the U.S. Forest Service files provided to the National Park Service after establishment of Great Basin National Park.

they had reached the site of present Panaca where some began planting crops at Meadow Valley Farm. Some of the men continued to explore the surrounding region, including the White River, Cave, Lake, Spring, and Steptoe valleys and portions of the Schell Creek, Egan, and Snake ranges, at one point crossing the latter through present Sacramento Pass. Altogether, the Southern Exploring Company had traveled some 1,245 miles during a three-month period.[16]

Work on the Snake Creek Farm proceeded while the White Mountain Expedition parties continued their exploration. By late May 1858 some fifty to sixty acres had been cleared, and most of the grain was planted. Ditches and other improvements had been made to provide for irrigation and protection. It was reported that the nights were cold and water was scarce. While the settlers were generally faring well, some were suffering from colds and rheumatism. The Indians were growing bolder, especially the Goslutes and the White Knives or Tosanwicks, the latter being a Shoshonean band that ranged south out of the Humboldt River country. These Indians had stolen some of the horses from Snake Creek, all but one, which the Indians had slaughtered, being recovered.[17]

By early summer 1858 the crisis involving the expeditionary force of U.S. Army troops in Utah had passed. The proclamation of peace made the mission of the settlers on Snake Creek, in Meadow Valley, and at Cave Spring in Badger (Clover) Valley unimportant – the remnant of an antiquated policy. Nevertheless, their struggle for survival was just as real as the day they left their homes.

Accordingly, in late June Brigham Young outlined his plans for the abandonment of Snake Creek Farm. The settlement was to be abandoned as soon as the crops could be harvested. The Indians were to be given "all the surplus vegetables and a portion of the grains." In the meantime, he ordered the Fillmore and Beaver settlements to supply replacements for the men who wanted to return to their homes.[18]

About the same time Bishop Brunson of Fillmore received word from David E. Bunnell, who had been appointed by Barney to oversee the Snake Creek Farm while he undertook further exploration, that "the water had dryed up so that there could not much be raised." Bunnell reported that the creek had failed entirely so that it was impossible to irrigate the wheat. After conferring with Apostle Orson Pratt, who had been in Fillmore since the beginning of the exodus from Great Salt Lake Valley, Brunson sent Samuel P. Hoyt with three men to Snake Creek to assess the situation and call in the mission if conditions were as bad as had been reported. The reports proved accurate, and the mission was abandoned, the last remnants of the expedition arriving back in Utah in late July and early August.[19]

The White Mountain Expedition was conceived as an alternative solution to a difficult problem – how to keep the Mormon kingdom intact while a hostile army invaded the Utah settlements. When Brigham Young determined that fighting the U.S. Army was pointless, he turned toward the interior deserts of the Great Basin, hoping to find an oasis or refuge for the embattled Saints. During the spring of 1858 this alternative plan became the hope of salvation for the Mormon kingdom. The White Mountain Expedition proceeded to the

---

16. Wheat, *Mapping the Transmississippi West*, IV, 125-36, and Stott, *Search for Sanctuary*, pp. 131-34, 210.

17. Stott, *Search for Sanctuary*, pp. 156, 182-83.

18. *Ibid.*, pp. 203, 205.

19. Stott, *Search for Sanctuary*, p. 210, and Volney King, "Millard County, 1851-1875: Part 3," *Utah Humanities Review*, I (July 1947), 261-78.

southwestern deserts of Utah Territory, penetrating deep into unexplored country. Even when the danger of the armed conflict was past and a desert sanctuary had become unnecessary, the expedition moved ahead surveying and mapping this vast *terra incognita*.

Although not widely recognized, the achievements of the White Mountain Expedition in Great Basin exploration were considerable. Large areas of present-day western Utah and eastern Nevada were charted and mapped for the first time. The expedition was the largest exploring enterprise ever promoted by the Mormon church with a combined force of more than 160 men. They combed virtually every mile of the country from the southern Utah settlements west to present-day Nevada's Railroad Valley and from Duck Creek on the north to the Pahranagat lakes in the south. Over a period of some four months they covered more than 2,000 miles, producing journals and maps of their findings. Recorded were their observations on mountains, valleys, streams, springs, climate, soil, water, grass, fuel, Indians, and potential for settlement. Because of the confidential nature of the expedition, however, these findings would not be generally known to the outside world for many years.[20]

20. Stott, *Search for Sanctuary*, pp. 213-24. Mormon colonization efforts recommenced during the late 1870s as a result of the high birthrate in Utah and economic stagnation brought on by a lengthy agricultural and mining depression. Thus, the Mormons began the search for new population outlets. Two such Mormon farming communities, Preston and Lund, were established in the White River Valley in 1898 by people from St. George and Cedar City, Utah. Leonard J. Arrington, *Great Basin Kingdom: An Economic History of the Latter Day Saints, 1830-1900* (Cambridge, Harvard University Press, 1958), pp. 382-83, and Rufus Wood Leigh, *Nevada Place Names: Their Origin and Significance* (Salt Lake City, Desert News Press, 1964), p. 60.

CHAPTER FOUR
EXPLORATION AND SURVEYS FOR TRANSPORTATION AND COMMUNICATION LINES ACROSS THE CENTRAL ROUTE OF THE GREAT BASIN DURING THE 1850s

INTRODUCTION

With the discovery of gold in California in 1848, and the subsequent acquisition of the American Southwest from Mexico as the result of the Treaty of Guadaloupe Hidalgo that same year, the United States became a contiguous nation stretching between the Pacific and Atlantic oceans. To unify this sprawling new country, it became apparent that a transcontinental transportation and communication system was needed to link the Pacific coast and the inland areas with the East. This link was particularly important to the West since the region was heavily dependent on transportation and communication for population growth and mining, business, and agricultural development.

Three primary transcontinental arteries passed through the Great Basin by the late 1850s. These routes were the Overland or Humboldt Trail in the north, the central route, sometimes referred to as the Egan-Simpson Trail, and the Old Spanish Trail in the south. All three routes had commenced as simple pioneer trails, later becoming wagon roads, and would ultimately be followed by major transcontinental railroads or highways. In this study attention will be focused on the exploration and surveys associated with the central route that crossed northern Snake and Spring valleys because of its proximity to present-day Great Basin National Park.

SURVEYS FOR A CENTRAL TRANSCONTINENTAL RAILROAD ROUTE: 1853-1854

Exploration for a central transcontinental railroad route between the 38th and 39th parallels was placed under the command of Lieutenant John W. Gunnison of the U.S. Corps of Engineers. With a party that included First Lieutenant Edward Griffin Beckwith, Third Artillery, as assistant and R.H. Kern as topographer, along with a geologist, botanist, and astronomer, Gunnison began a scientific exploration for a central route from Fort Leavenworth on June 23, 1853. Eventually crossing the Grand and then the Green rivers, the party found a passage through the Wasatch and Pahvant mountains down into the Great Basin near Utah Lake. Moving westward to the Sevier River Valley, Gunnison was warned of a possible Indian uprising, resulting from the recent murder of an aged Pahvant Indian by the Hudspeth Company, an emigrant party enroute to California. After purchasing provisions in Fillmore, the Gunnison party passed through Deseret in Pahvant Valley, near present-day Delta, but a few miles west of this settlement an attack was launched by a Pahvant Indian band. In the ensuing struggle during the early morning of October 26, 1853, Gunnison and seven others were killed, and only four escaped. Thus, the Gunnison survey ended abruptly, some 90 miles east of the Snake Range.[1]

The second phase of the central railroad route surveys began during the spring of 1854 when Lieutenant Beckwith received orders to explore the Great Basin "passing to the south of the Great Salt Lake in the direction of the 'Sink' of Humboldt or Mary's river, thence towards Mud lake [Black Rock Desert] and across the tributaries of Feather River, and thence by the most practicable route to the valley of the Sacramento River." Accordingly,

---

1. William H. Goetzmann, *Army Exploration in the American West: 1803-1863* (New Haven, Yale University Press, 1959), pp. 283-86.

Beckwith's mapping expedition left Great Salt Lake on May 5 and entered present-day Nevada and White Pine County about three miles south of the Elko County boundary. The line of travel extended over Antelope Valley, passed the north end of Gosiute Lake which Beckwith named, rounded the north end of the Cherry Creek Range, and then turned northwest to Secret Pass at the south end of the East Humboldt Mountains. Near the Cherry Creek Range Beckwith encountered an old man and young woman at a "Digger wick-ey-up." The Indians, according to Beckwith, had "no shelter, no blankets – nothing but a deer-skin or two, a few ground-rats, a little grass-seed in grass baskets . . . and a variety of artemisia-seed . . . for two of the most emaciated and mean-looking dogs I ever saw." Instead of crossing Secret Pass, the party traveled south along the east base of the Ruby Mountains, crossing the range via Overland Pass. The expedition forded Huntington Creek on its way west to Lassen Meadows and then over the Sierra Nevada to California, discovering two suitable passes into Sacramento Valley – Madeline Pass and Nobles Pass near Honey Lake.[2]

In his report, which was highly favorable toward the 41st parallel route, Beckwith emphasized that the line followed a remarkably straight course through relatively fertile territory. Nevertheless, his report contained comments on the barren lands of the Great Basin west of Salt Lake Valley and south of the Humboldt River Valley:

> From the western shore of Great Salt Lake to the valley of Humboldt river, the country consists alternately of mountains, in more or less isolated ranges, and open, level plains, rising gradually from the level of the lake on the east to the base of the Humboldt mountains on the west, or from 4,200 feet to 6,000 feet above the sea. . . . Immediately west of this range there occurs a desert plain of mud, about seventy miles in width from east to west, by its longest line, which becomes narrowed to forty, and eventually entirely disappears as it extends southward – less than thirty of which is miry by this line – and it is firm in proportion to the distance from the lake. Two or three small, isolated rocky ranges stand in it, but it appears otherwise to the eye, as level as a sheet of water. To the west this desert is succeeded by broken mountain ranges, one of which is terminated towards the south near Pilot Peak, affording the means of reaching and passing to the succeeding plain.
>
> The country to the south of this valley [Humboldt] consists of an alternation of narrow mountains and valleys rapidly succeeding each other. The mountains have a general north and south course, but not unfrequently vary many degrees from that general direction, and, occasionally, cross chains are seen, closing the valleys to the north and south; but large spurs more frequently extend out from succeeding chains, and unite to form cross ranges, or overlap and obstruct the view. They are sharp, rocky, and inaccessible in many parts, but are low and easily passed in others. Their general elevation varies from 1,500 to 3,000 feet above the valleys, and but few of them retain snow upon their highest peaks during the summer. They are liberally supplied with springs and small streams, but the latter seldom extend far into the plains. At the time of melting snows they form many small ponds and lakes, but at others are absorbed by the soil near the bases of the mountains. Grass is found in abundance upon nearly every range, but timber is very scarce, a small scattered growth of cedars only being seen upon a few ranges. The valleys rarely extend uninterruptedly east and west, to a greater width than five or ten miles, but often have a large extent north and south. They are very irregular in form, frequently extending around the ends of mountains, or are united to succeeding valleys by level passages.

---

2. McLane, "Exploration and Early Mapping in Eastern Nevada," p. 3.

> They are much less fertile than the mountains, but generally support several varieties of artemisia, relieving them from the character of barrenness or desert. There are, however, many barren spots in each of these valleys, and the soil is seldom one half covered with vegetation, even for a few acres, while the great mass of it is merely sprinkled by the sombre artemisia foliage, presenting the aspect of a dreary waste, unrelieved by inviting shades, grassy plats, and floral beauties, and is nowhere suitable for settlements and cultivation.[3]

TRAVERSE FOR A CENTRAL ROUTE TRAIL BY HOWARD R. EGAN: 1855

In 1855 Howard R. Egan, a one-time major in the Mormon Nauvoo Legion and a well-known guide and mountaineer, traversed the central Great Basin area to find a shorter central route between Salt Lake City and Sacramento. For some years he had been engaged in driving stock to California from the Utah Mormon settlements in the service of Livingston & Kinkead. Thus, he was familiar with the area and was prevailed upon by the Mormon hierarchy to find a shorter central route connecting their widespread settlements with the Central Valley in California. Major George Chorpenning also induced Egan to search for a more direct trail between Utah and California for a mail route.

During 1855 Egan made two trips between Salt Lake City and Sacramento. In July he and several men made their first crossing. Upon his return he made a wager that he could ride to Sacramento in ten days on mule-back, and thus he and several men set out from Great Salt Lake on September 19. Succeeding in winning the wager Egan advertised his new trail as a crossing of a "Trackless and Desert Country" in a "Time Never Equalled Before" by "Such a Mode of Traveling." Known for some years thereafter as Egan's Trail, the new course crossed southwest of Deep Creek, passed through northern Snake and Spring valleys, and crossed the Schell Creek Range at Schellbourne Pass. In his 1855 diary Egan described the route:

> Fifteen miles to Ruby Valley. Twenty miles down to valley; forty miles in same valley, creek fifteen miles [perhaps Schell Creek] on the side of a small mountain in a large spring. Twenty miles over mountain five or six springs [Spring Valley]. Twelve miles to summit of little mountain; twenty-five miles to Deep Creek.

The route varied generally "but a few miles from 40 degrees north latitude, until reaching Hastings pass in the Humboldt mountains where it branched off in a southwesterly direction toward Carson lake and river, and from Carson City south to Genoa," before crossing the Sierra Nevada to Sacramento.[4]

The Egan route was similar to that later taken by Simpson's survey and was adopted by Chorpenning for an overland mail route from Salt Lake City to Sacramento. The general route would also be used by the Pony Express in 1860-61.

---

3. "Report of Explorations for a Route for the Pacific Railroad of the Line of the Forty-First Parallel of North Latitude by Lieut. E.G. Beckwith, Third Artillery, 1854," pp. 61-62, in U.S. Congress, House, *Reports of Explorations and Surveys, To Ascertain the Most Practicable and Economical Route for a Railroad From the Mississippi River to the Pacific Ocean, Made under the Direction of the Secretary of War, in 1853-54*, Vol. II, H.R. Ex. Doc. 91, 33d Cong., 3d Sess., 1855, and Goetzmann, *Army Exploration in the American West*, pp. 286-87.

4. William M. Egan, comp., *Pioneering the West, 1846 to 1879: Major Howard Egan's Diary* (Richmond, Utah, Howard R. Egan Estate, 1917), pp. 195-98.

SURVEY FOR MILITARY WAGON ROAD ACROSS THE CENTRAL ROUTE BY JAMES H. SIMPSON: 1859

During the summer of 1858, the U.S. Army under Albert Sidney Johnston was bivouacked at Camp Floyd in Cedar Valley south of the Great Salt Lake and west of Utah Lake, and turning from the business of suppressing a supposed rebellion to the tasks of peace. Thus, Johnston ordered his chief topographical engineer, Captain James H. Simpson, to make two reconnaissance trips, one for a wagon road that would connect Camp Floyd with the supply depot at Fort Bridger via Timpanogos Canyon and the other to locate a new more direct route to California with the immediate objective of locating a possible site for a fort part way across the Great Basin. With winter approaching, Simpson turned back to Camp Floyd after ranging as far west as the Thomas Mountains in his quest to find a new direct route to California. During the winter of 1858-59 Simpson submitted a proposal for future exploration across the Great Basin to Secretary of War John B. Floyd:

> It is believed that a direct route from this post to Carson Valley in Utah can be obtained which would avoid the detour by the Humboldt to the right and that by the Las Vegas and Los Angeles route to the left and that it could be obtained so as to make the distance to San Francisco less than 800 miles . . . 260 miles shorter than the Humboldt River route and 390 miles shorter than the Los Angeles route.

In addition, he proposed that another expedition be sent to open a route from Camp Floyd to the headwaters of the Arkansas River, where it would continue via Bent's Fort to Fort Leavenworth.[5]

Secretary of War Floyd approved the plan, and on May 2, 1859, Simpson led a party of sixty-four officers and men out of Camp Floyd into the Great Basin. He had as assistants two young officers of the Topographical Corps, Lieutenant J.L. Kirby Smith and Lieutenant Haldeman L. Putnam. Demonstrating the scientific character of the expedition, Simpson had Henry Engelmann as geologist, meteorologist, and botanical collector; Charles S. McCarthy, collector of specimens of natural history and taxidermist; C.C. Mills, photographer; and H.V.A. von Beckh, artist. John Reese, "Pete," a Ute Indian, and George Washington Bean, one of the leaders of the Mormon White Mountain Expedition of the previous year, served as guides. The escort of twenty-two men was commanded by Lieutenant Alexander Murray of the Tenth Infantry.[6]

The course of the Simpson reconnaissance, which generally followed the Egan route, led slightly south of due west through Rush Valley to Johnston's Pass in Guyot's Range. From there the men moved into Skull Valley and the Salt Lake Desert before passing through Pleasant and northern Snake and Spring valleys and then across Schellbourne Pass into Steptoe Valley. Simpson then crossed Butte and Ruby valleys and Hastings Pass in the Humboldt Mountains.[7]

---

5. *Report of Explorations Across the Great Basin of the Territory of Utah for a Direct Wagon-Route from Camp Floyd to Genoa, in Carson Valley, in 1859, by Captain J.H. Simpson* (Washington, Government Printing Office, 1876), pp. 1-41. Further information on Simpson's reconnaissance may be found in the diary and notes of William Lee, his secretary. See William Lee, "A Copy of My Notes Taken While On A Journey Across the Plains from Washington to Genoa, Carson Valley, Utah, From April 11th May 9 (Monday) 1858 to Oct. 25th 1859, Manuscripts Division, Bancroft Library, University of California, Berkeley.

6. *The Shortest Route to California Illustrated by a History of Explorations of the Great Basin of Utah with its Topographical and Geological Character and Some Account of the Indian Tribes by Brevet Brig.-General J.H. Simpson* (Philadelphia, J.B. Lippincott & Co., 1869), pp. 30-32.

7. Goetzmann, *Army Exploration in the American West,* p. 400.

In his journal Simpson wrote extensive observations on the terrain and Indians that his party encountered in present-day western Utah and eastern Nevada. On May 7, 1859, while at Fish Springs in the Great Salt Lake Desert, he made his first comments about the Snake Range and Wheeler Peak, which he referred to as the "Go-shoot or Tots-arrh Mountains" and "Union Peak," respectively:

> Took up march at 6 1/4 o'clock. In 3.5 miles pass Warm Spring and a mail-station. Soon after starting it commenced to rain, which softened the road at the outset so much as to cause the wagons, 6 miles from Fish Springs, to stall occasionally in a distance of one-quarter of a mile. Detained an hour on this account. At this point the road doubles the point of the range along which we have been traveling, and continues on the plain of the desert toward the Go-shoot or Tots-arrh Mountains, meaning high mountain range. After making a journey of 29.7 miles, and coming for the first time to grass, the mules beginning to give out, we were obliged about sundown to encamp without water, except that in our kegs. I however found water 2.5 miles ahead, to which we will move to-morrow. The journey to-day has been a hard one, on account of the sandy and, in some places, boggy character of the soil. The country passed over is as desert a region as I ever beheld, scarcely a spear of grass visible, and in some areas not even the characteristics of an arid soil, greasewood, or sage. In some places the ground is perfectly bare of everything, and is as smooth and polished as a varnished floor. The first grass we have met with is that in which we are encamped.
>
> The Go-shoot or Tots-arrh Mountains have been nearly all day long directly ahead of us, and appear very high. The peaks are covered with snow, and some 70 miles quartering to the left from our camp may be seen a towering one, which I call Union Peak, on account of its presenting itself in a doubled and connected form. The geological character of the range is sedimentary, intermingled with quartz-rock.

While still in the Great Salt Lake Desert on May 8 Simpson observed that the mountains, "among them the Granite and Go-shoot Mountains, hemming us in at distant points, made up an agreeable landscape." He also described his first encounter with Indians on the reconnaissance:

> Just before dinner a Parvan (Ute) Indian (Black Hawk) came into camp. This is the first Indian we have seen on our route. His squaw is a Go-shoot woman, and he lives among that people. Gave him his dinner and some tobacco. Had a sketch of him taken. He wears his hair tied up at the temples and behind; carries a buckskin pouch and powder-horn; a bow and quiver swung on his right side; wears a pink checked American shirt, buckskin leggins and moccasins, and a blanket around his loins; an old black silk handkerchief is tied about his neck. He has one huge iron spur on his right heel, and rides a sorrel pony. His height is 5 feet 7 1/2 inches; has a stout square frame; age, probably, 35; carries a rifle. His bow is 3 feet long, and is made of sheep's horn; arrow, 25 inches long, feathered, and barbed with iron. His countenance is ordinarily sardonic, but lights up in conversation, and shows as much intelligence as Indians do ordinarily.

The following day Simpson had more contact with Indians as his journal entry for May 9 indicates. While at his camp at Sulphur Spring he described their lifeways at considerable length:

We have to-day seen a number of Go-shoot Indians. They are most wretched-looking creatures, certain the most wretched I have ever seen, and I have seen great numbers in various portions our country. Both men and women wear a cape made of strips of rabbit-skins, twisted and dried, and then tied together with strings, and drawn around the neck by a cord. This cape extends to just below the hip, and is but a scant protection to the body. They seldom wear leggins or moccasins, and the women appear not to be conscious of any impropriety in exposing their persons down to the waist. Children at the breast are perfectly naked, and this at a time when overcoats were required by us. The men wear their hair cut square in front, just above the eyes, and it is allowed to extend in streamers at the temples. The women let their hair grow at random. They live on rats, lizards, snakes, insects, grass-seed, and roots, and their largest game is the rabbit, it being seldom that they kill an antelope.

I learn from Mr. Faust, the mail-agent at this point, that there are only about 200 Go-shoots all told of every age. They use, generally, the bow and arrow, there being only one gun to about 25 men. He represents them as of a thievish disposition, the mail company having lost by them about 12 head of cattle and as many mules. They steal them for food.

Just at sunset I walked out with Mr. Faust to see some of these Go-shoots at home. We found, about 1.5 miles from camp, one of their habitations, which consisted only of some cedar branches disposed around in the periphery of a circle, about 10 feet in diameter, and in such a manner as to break off, to the height of about 4 feet, wind from the prevailing direction. In this inclosure were a number of men, women, and children. Rabbit-skins were the clothing generally, the poor infant at the breast having nothing on it. In the center was a camp-kettle suspended to a three-legged crotch or tripod. In it they were boiling the meat we had given them. An old woman superintended the cooking, and at the same time was engaged in dressing an antelope-skin. When the soup was done, the fingers of each of the inmates were stuck into the only dish, and sucked. While this was going on, an Indian came in from his day's hunt. His largest game was the rat, of which he had a number stuck around under the string of his waist. These were soon put by the old woman on the fire, and the hair scorched; this done, she rubbed off the crisped hair with a pine-knot, and then, thrusting her finger into the paunch of the animal, pulled out the entrails. From these, pressing out the offal, she threw the animal, entrails and all, into the pot.

The rats are caught by a dead-fall made of a heavy stone, and supported by a kind of figure 4, made as it ordinarily is for a trap, except that, instead of a piece of wood, a string is used, tied, and provided with a short button, which being brought around the upright, is delicately held in position by a spear of dried grass or delicate piece of wood, which, pressing against the button, rests at the other end against the ground or stone. Traps like these are placed over the holes of the rats, and they, coming in contact with the long or lower piece of the figure 4, bring the stone upon them. They are also speared in their holes by a stick turned up slightly at the end and pointed, and with another, of a spade-form at the end, the earth is dug away until the animal is reached and possessed.

The Go-shoots, as well as the Diggers, constantly carry about with them these instruments of death, which, with the bow and arrow and net, constitute their chief means for the capture of game. Hanging on the brush about their "kant," as they call their habitations, I noticed one of these nets. It was well made, of

excellent twine fabricated of a species of flax which grows in certain localities in this region, is 3 feet wide, and of a very considerable length. With this kind of net they catch the rabbit. A fence or barrier, made of the wild sage-bush plucked up by the roots, or cedar branches, is laid across the paths of the rabbits, and on this fence the net is hung vertically, and in its meshes the rabbit is caught.

The fear of capture causes these people to live generally some distance from the water, which they bring to their "kant" in a sort of jug made of willow tightly platted together and smeared with fir-gum. They also make their bowls and seed and root baskets in the same way – a species of manufacture quite common among all the Indian tribes, and which, in 1849, I saw in the greatest perfection among the Navajos and Pueblo Indians of New Mexico.

I noticed a species of the food they eat, and which is made from seeds and roots which they get in the bottoms. I tasted it, but it looking precisely like a cake of cattle-ordure, and having anything but an agreeable taste, I soon disgorged it.

On May 10 the Simpson party crossed into present-day Nevada, entering Pleasant Valley in which the men camped. Here he wrote:

The mountains are covered with cedars, and also contain pine and fir large enough for building purposes, and stone. Below the spring there is a very limited amount of cultivable land, which might be irrigated. This is the first cultivable land we have seen since we left Camp Floyd. The universal scene has been an arid, light argillo-arenaceous soil in the valleys, and the *artemisia* more or less everywhere.

The formation of the Tots-arrh range, in which Pleasant Valley lies, is made up of slaty and calcarous rocks, mostly highly altered, and on the south side of the valley are seen granite rocks and quartzite. On the west side, near our present camp . . . impure limestones and sandstones abound, pointing to the Carboniferous formation. The soil of the valleys correspond.

In this country, where grass is scattered as it is in the case of the bunch-grass, or scarce, it is necessary, in order to keep up the condition of the animals, to herd them. For this purpose we have four herders, three of whom are Mexicans and one an American. One of these drives the herd during the day, the others sleeping in the wagons, and at night the last mentioned take care of them. We have, therefore, brought with us only a few lariats for the horses, which, however, are seldom used except as guys to our wagons along side-hills, and to close up the gaps between the wagons when corralled for stock-catching in the morning. At Camp Floyd and other places in Utah, there are a number of Mexicans who prove valuable as herders. Besides being capital for looking up stray animals, they are generally expert in throwing the lasso.

On May 11, while camping in Antelope Valley, Simpson described the terrain of Antelope and Spring valleys and Indian inhabitants as well as further sightings of Union Peak during the day's journey from Pleasant Valley. He observed:

Just after leaving camp we have a fine distant view of the mountains hemming in the Antelope Valley at the west and north. After getting across the valley you can see to the east of south, glittering with snow, the high peak of the Go-shoot, or Tots-arrh range, some 60 miles off. This valley runs north and south,

is flatly and smoothly concave, and about 12 miles wide; is bounded on the east by the Tots-arrh or Go-shoot range; on the west by the Un-go-we-ah, or Pine Timber range, which are next to the Tots-arrh in height; at the north distantly it appears to be hemmed in by mountains, and at the south is uninterrupted in view. Altitude above the sea, 5,690 feet. The soil is a sandy gravel on the benches, in the bottom argillaceous and covered with short sage. In the vicinity where we cross it there are no indications of water or grass, but some 50 miles to the south of us, to the north of our return-route, there is water and an abundance of grass. After crossing Antelope Valley, you ascend a rather low range of mountains, composed of slaty, stratified rocks, by a tolerable grade, and get into a shallow valley, called Shell Valley on account of its being covered with shale. Crossing this you descend over a formation of dioritic rocks, in 2 miles, by a good grade, into Spring Valley, where there is an extensive bottom of alkaline grass and of spring water, and where we encamp early in the afternoon.

This is a narrow valley, running north and south, and lies between the Un-go-we-ah range on the west and a low minor range on the east. It is called Spring Valley, from the number of springs which make a chain of small shallow lakes or ponds in the direction of its length. The grass in it is abundant, but coarse and alkaline. Better grass can be found in the ravines and on the bench on the west side of the valley. The alkaline nature of the soil makes it unfit for cultivation. The formation of the valley, which is a highly metamorphosed character, is composed, probably, of semi-fused stratified rocks.

Found some Root-Diggers here, one a very old woman, bent over with infirmities, very short in stature, and the most lean, wretched-looking object it has ever been my lot to see. Had her likeness taken.

These Indians appear worse in condition than the meanest of the animal creation. Their garment is only a rabbit-skin cape, like those already described, and the children go naked. It is refreshing, however, in all their degradation, to see the mother studiously careful of her little one, by causing it to nestle under her rabbit-skin mantle.

At first they were afraid to come near us, but bread having been given to the old woman, by signs and words she made the others in the distance understand that they had nothing to fear, and prompted them to accompany her to camp to get something to eat. Notwithstanding the old woman looked as if she was famished, it was very touching to see her deal out her bread, first to the little child at her side, and then, only after the others had come up and got their share, to take the small balance for herself. At camp, the feast we gave them made them fairly laugh for joy.

Near our camp I visited one of their dens or wick-e-ups. Like that already described, it was an inclosure, 3 feet high, of cedar-brush. The offal around, and in a few feet of it, was so offensive as to cause my stomach to retch, and cause a hasty retreat. Mr. Bean told me the truth when he spoke of the immense piles of *fæces* voided by these Indians, about their habitations, caused doubtless by the vegetable, innutritious character of the food.

I noticed the women carrying on their backs monstrous willow baskets filled with a sort of carrot root, which they dig in the marsh, and the cacti, both of which they use for food. The stature of these Indians, both male and female, is under size. After dark a number came in; but it is a rule with us not to permit them

to remain all night in camp, and they were told that though they could not remain with us, they could come in the morning. Their joyous conversation shows that they believe they have got among good friends.

On May 12 the Simpson party crossed Spring Valley on the way to Steptoe Valley. He found Spring Valley to be "cold" on "account of its altitude." On the way he encountered

> what the Mormons call *mountain mahogany* in the pass. This tree (the *Cercocarpus ledifolius*) grows generally at the summit of the passes. It is somewhat scrubby in appearance, ramifying in several branches from the ground, and in form resembles the apple-tree. Its greatest height is about 20 feet, and the aggregate breadth of its branches 20 feet. Its wood is very hard, and is used for cogs, journals, gudgeons, &c.[8]

From Hastings Pass in the Humboldt Mountains Simpson turned southwest to blaze his new trail to California. This led across a number of mountain ranges, valleys, and creeks, which he named for himself, friends, and superiors, including the Cooper Mountains, Cooper Pass, Reese Valley, Simpson Park, and Engelmann Creek. At the north end of the Black Mountains the expedition struck Carson Lake and turned south to Walker's River, then north again, where it crossed the Carson River before reaching Carson City and Genoa. Leaving his command at the latter settlement, Simpson took a stage over the Sierras via Dagget's Trail to Placerville. After visiting Sacramento and San Francisco, Simpson rejoined his men, and on June 24, 1859, the party began its return march to Camp Floyd. On its return, the survey party swung southward of the outgoing trail, passing through Steptoe Valley near present-day Ely and crossing the Schell Creek Range into Spring Valley before moving over the Snake Range via Sacramento Pass into Snake Valley. From there the men crossed the Guyot Range through Oak Pass and then returned to Camp Floyd.[9]

Simpson's journal entries for July 19-21, during which the party was in the vicinity of the Snake Range, provide interesting glimpses of the terrain. The entry for July 19, written at his camp in Antelope Valley, stated in part:

> As you descend Little's Cañon to Antelope Valley the Go-shoot, or Tots-arrh, range looms up toweringly in front of you, the most conspicuous portion being Union Peak. Antelope Valley, in which we are encamped, exhibits a much better soil in this portion of it than where we crossed it on our outward route. To the north, commencing about three-quarters of a mile from our camp, a bottom of good grass (a great deal of it red-top), 2 or 3 miles wide, extends for a distance of 8 or 10 miles northwardly, and probably further, and intermingled with it are extensive groves of tall cedars, which thus far on our routes, existing, as these groves do, in the *bottom* of the valley, is quite an anomaly. Birds frequent these groves, and make the air resonant with their music. The scenery, too, is quite pretty. This valley is 5,633 feet above the sea, and therefore 513 feet lower than Steptoe Valley where we last crossed it. It is not, however, so well watered as the latter, neither is the grass so luxuriant. There are, however, some fine cold springs which we will pass tomorrow, about 2 miles up Turnley's Cañon, and 8 miles to the northeast of this camp, which might be useful were a fort established in this valley.

---

8. *Report of Explorations Across the Great Basin . . . in 1859 . . . by Simpson*, pp. 51-57.

9. Goetzmann, *Army Exploration in the American West*, pp. 402-03.

On July 20 Simpson apparently camped at what is now known as Layton Springs in Spring Valley. Here he made observations on the Snake Range, Strawberry Canyon which he termed Red Cañon, and Union Peak. It is significant to note that he was the first to write of the presence of snow on the peak during the summer. He stated:

> Course east of north, 5.8 miles up Antelope Valley to mouth of cañon, which I call after Capt. P.T. Turnley, assistant quartermaster at Camp Floyd, and which leads us to the pass over the Go-shoot or Tots-arrh range. Our road turns up this cañon southeastwardly, and 2.2 miles from mouth we find some fine copious cold springs, which I call also after Captain Turnley. Grass and wood-fuel found in vicinity. Persons traveling our route will find a road to the north of ours, and more direct from near the mouth of Little's Cañon to the mouth of Turnley's Cañon 1.8 miles by a remarkably easy grade, the cañon being amply wide, we reach summit of pass of the Go-shoot or Tots-arrh range (7,060 feet above the sea), whence we had toward the east a fine view of some distant mountains, Union Peak of the Tots-arrh range to the east of the summit towering far above every other height, and showing a great deal of snow and apparently depending icicles in its recesses. Indeed, I think this peak the highest we have seen on either of our routes. Descending from pass on east side, by a cañon of very easy inclination, in 7.2 miles reach a fine spring of flowing water, where we encamp. This cañon I call Red Cañon, on account of its red-colored rocks. The spring is called by the Indians Un-go-pah, or Red Spring. Plenty of grass exists near and in vicinity, and I notice also some springs to the south side of us, in the cañon, about 2 miles off. Union Peak, which lies some 10 or 15 miles to the west of south of us, the Indians call Too-bur-rit; but I cannot learn its meaning. The mountain range is covered with cedar, piñon, and fir. Road to-day very good. . . . An elk was seen for the first time yesterday in Stevenson's Cañon, and one to-day in Red Cañon; also, a mountain sheep for the first time.
>
> The Tots-arrh range, on west side, is composed of altered limestone and quartzite. The limestone forms the mountains on both sides of summit of pass. On east side, along the road, was noticed a great deal of calcareous conglomerate; also, quartzite and impure limestones.

At his encampment at Un-go-pah or Red Springs in what is now known as Strawberry Canyon, Simpson described the area in his journal on July 21. Among other things, he commented on his observations of Snake Valley which he named Crosman Valley:

> Continue to descend Red Cañon to valley on east side of Tots-arrh range, which valley I call after Deputy Quartermaster-General George H. Crosman, stationed at headquarters Department of Utah. The road we are following, and have been since we left Steptoe Valley, is the Mormon road. . . . The indications are that some fifty wagons have been over it. The tracks of the cattle are still visible, and the dung yet remains on the road. About 3 miles from camp we leave the road, to cut off a bend of it. About 2.5 miles farther cross a dry branch just below its sink. Cottonwood at crossing. Five and a half miles farther brings us to a rush spring of tolerable water, which, by excavation, could be made to serve a pretty large command. There is a great deal of grass about it, and in the vicinity. Three and a half miles farther we join and follow again the Mormon road. Half a mile farther we come to creek, 3 feet wide, 1 deep, which comes from the south, and sinks a quarter of a mile below camp. In places it is lined with rushes and willows. On this creek, which I call also after Colonel Crosman, we encamp at half past 12, amid abundance of grass. This valley, which, like nearly all the others, lies north and south, is 12 to 15

> miles wide, and is partially closed at either end by high mountains, some 25 or 30 miles off. Its elevation above the sea is 4,920 feet. It has a great deal of grass in it, in localities, and is at these places supplied with springs, which are either copious or can be made sufficiently so. Small greasewood the characteristic. Road to-day generally very good, sometimes cutting up from alkali. Soil generally gravelly. Journey, 14.8 miles.

Simpson continued to describe the area of Snake Valley on his way to the House Range. In his journal on July 22, while camped at Crosman Creek, he observed:

> Moved at 5, and continue on Mormon road. Course, northwardly in valley for 10.2 miles, when we come to a number of small springs, which I call after Lieut. Peter W.L. Plympton, Seventh Infantry. These springs at present do not afford a great deal of water, for the reason of their being no proper excavations, but a great sufficiency could be easily obtained in this way. The soldier who last joined us at Un-go-pah Springs was directed by the guide to conduct us to a spring 12 miles distant from our last camp, but as these are only 10 miles distant, and the soldier has not been to the place, we continued on in the hope of seeing the springs referred to within about a couple of miles and camping at it. It proved, however, that at this distance there were no springs, so that I was lured on in the hope of finding them a little farther on. At 13, 14, and 15 miles from camp we saw none, and then, according to the notes of the guide, which he had shown me, feeling confident that they were beyond, in striking distance, I continued on till, at quarter to 5 o'clock, we had traveled 30.1 miles, when we were obliged to encamp near some puddles of water, which had been made by the rain, just before we reached the spot. The misfortune is, too, that there is no grass in the vicinity, but the barley we purchased at Placerville now comes into requisition, and we shall thus be enabled to get through the night.
>
> After reaching, as above stated, Plympton's Springs, our route lay eastwardly 6.7 miles to foot of pass, across a low, thirsty mountain-ridge, which I call Perry Range; thence 3.1 miles by a good grade, up a broad cañon to summit, the rocks on the left side being buttress or bluff-like; and thence, by gentle descent 10.1 miles to camp. The ridge we have passed over is composed of highly altered silico-calcareous rocks, and is almost entirely bare of trees. From the summit of the pass, 5,657 feet above the sea, could be seen, some 25 or 30 miles off, on east side of range of mountains, quite remarkable on account of its well-defined stratification and the resemblance of portions of its outline to domes, minarets, houses, and other structures. On this account I call it the House range. Between it and the ridge forming our point of view is a very extensive valley, very generally white with alkaline efflorescence, and I have therefore called it White Valley. It is some 25 miles wide, and partially closed north and south by low ranges, about 15 miles off. Soil, areno-argillaceous. Small greasewood the characteristic.[10]

Simpson's explorations of the Great Basin in 1859 were his last before the Civil War. Based on his observations Simpson recommended the use of his more northerly outgoing route for a military wagon road because it provided better water and forage for livestock. This route was similar to that explored by Egan in 1855.

Simpson prepared two reports, but these were not published until after the war. These documents were *The Shortest Route to California Illustrated by a History of Explorations*

---

10. *Report of Explorations Across the Great Basin . . . in 1859 . . . by Simpson,* pp. 120-23.

of the Great Basin of Utah (1869) and *Report of Explorations Across the Great Basin of the Territory of Utah for a Direct Wagon-Route from Camp Floyd to Genoa, in Carson Valley, in 1859* (1876). The latter contained a geological report by Engelmann, a paleontological study by F.B. Meek, a list of birds by a Professor Baird, a chapter on ichthyology by Theodore Gill, and a botanical resume by George Englemann.[11]

In *The Shortest Route to California*, published in 1876, Simpson described the results of his 1859 expedition. Using the third person, he noted:

> The result of the expedition was the opening of two new, practicable wagon routes across the Great Basin; the shorter of which lessened the distance between Great Salt Lake City and San Francisco a trifle over two hundred miles; and the other about one hundred and eighty miles. Immediately the first-mentioned became the postal route; the "Pony Express" commenced its trips over it, and emigrants to California have used it ever since. Also by the recommendations of Captain Simpson, and the efforts of Colonel Bee, the then President of the Overland Telegraph Company, which at that date had extended its wires only from San Francisco a distance of two hundred and fifty miles to Genoa, Congress was induced to pass the bill incorporating the Overland Telegraph Company and authorizing it to construct a telegraph across the continent from the Atlantic to the Pacific. It was the fortunate circumstance of Captain Simpson finding so feasible a telegraph route and reporting it to Colonel Bee, that induced the latter to go on to Washington from California and press the matter of the Overland Telegraph through Congress to a successful result.[12]

While his reports were not published until after the Civil War, the 1859 expedition of Simpson was a capstone to his brilliant career as an Army explorer. During the previous decade he had marched over more of the western country than any of the other U.S. Army topographers. Conservative in his judgments and scrupulous in his road-building duties, he countered the popular enthusiasm for headlong progress in opening transportation arteries. In his final report in 1876 he pronounced the southwestern Great Basin an "unmitigated desert," and yet "notwithstanding all this, annually you will see bills brought forward in Congress in which the land along the route figures as a very important element in the ways and means to construct the [rail] road." He remained a wagon-road man, however, and believed that the government should first build local roads and postal routes, then populate the country and develop its resources before attempting to construct a transcontinental railroad. In practical terms he had done his part to bring this about as the Pony Express, Overland Stage, and transcontinental telegraph would use routes he had tracked across the Great Basin. His final report included a thorough survey of the botany, zoology, and meteorology of the central region of the Great Basin, thus contributing to the scientific knowledge of a largely unknown area.[13]

In his devotion to the increase of knowledge, for both practical and theoretical purposes, Simpson proved both to be a rugged explorer and a man given to metaphysical contemplation. Halfway up the western slope of Cho-kup's Pass in central Utah, he once paused to reflect:

---

11. U.S. Army, *Report Upon United States Geographical Surveys West of the One Hundredth Meridian*, Vol. I, Geographical Report, Part III, pp. 611-13.

12. *Shortest Route to California . . . by Simpson*, p. 33. Simpson summarized the chief characteristics in pages 35-55 of this report. A copy of this information may be seen in Appendix D.

13. Goetzmann, *Army Exploration in the American West*, pp. 403-04, and *Report of Explorations Across the Great Basin . . . in 1859 . . . by Simpson*, pp. 236, 262-65.

From this peak had a most magnificent view of the mountains in every quarter of the horizon – the Humboldt range, to the east of north, showing its white snowy summits far above the intervening ones. These distant views have, at least on my mind, a decidedly moral and religious effect; and I cannot but believe that they are not less productive of emotions of value in this respect than they are of use in accustoming the mind to large conceptions, and thus giving it power and capacity. The mysterious property of nature to develop the whole man, including the mind, soul, and body, is a subject which I think has not received the attention from philosophers which its importance demands; and though Professor Arnold Guyot, of Princeton, has written a most capital work on the theme, "Earth and Man," yet a great deal remains to be done to bring the matter to the profit of the world at large, which, it seems to me, a wise and beneficent Creator has ordained should be gathered from the contemplation and proper use of his works.

But then the question arises, Do we rise from the contemplation of nature to nature's God, and therefore to a realization of the amplitude and reach to which our minds are capable, by our own unaided spirit; or is it by the superinduced Spirit of the Almighty Himself, which we have received, it may be, on account of his only Son? But these speculations may be considered as foreign to the necessary rigor of an official report; and I, therefore, will indulge in them no further than to say that, according to my notions, the latter I believe to be the true theory.[14]

TRANSPORTATION AND COMMUNICATION LINES ACROSS THE CENTRAL ROUTE: 1859-1869

During the years 1859-61 various transportation and communication lines were commenced along the general central route across the Great Basin through northern Snake and Spring valleys well north of present-day Great Basin National Park. These enterprises generally followed the paths blazed by Egan and Simpson in 1855 and 1859, respectively.

Overland mail, stage, and telegraph service was inaugurated along the central or Simpson-Egan route during 1859-61. In September 1859 the Overland Mail Stage, operated by Major George Chorpenning, moved its lines to this route from its previous more northerly course. From April 3, 1860, to October 27, 1861, the Pony Express operated between St. Joseph, Missouri, and Sacramento, California, crossing northern Snake and Spring valleys and continuing on to Schellbourne in the northern Schell Creek Range and Cherry Creek in the Egan Range. The transcontinental telegraph was completed in September 1861 along the central route, permitting the first telegraph message to be transmitted from San Francisco to Washington, D.C., on October 24, 1861, and forcing the Pony Express to terminate its services as an unprofitable enterprise. In July 1861 the Southern Daily Overland Mail, which had been established through northern Texas to California in 1859, was transferred to the Simpson-Egan route because of anticipated disturbances along the southern route as a result of the Civil War. By 1865 a single Overland Mail and Stage Company had consolidated mail, freight, and passenger service between Salt Lake City and California with

14. *Report of Explorations Across the Great Basin . . . in 1859 . . . by Simpson,* p. 69.

some 36 stations, 60 wagons, 190 horses, and 22 drivers operating between Austin, Nevada, and Salt Lake City.[15]

The central or Egan-Simpson route through the Great Basin was described by various travelers in written accounts. While they generally depicted the route as a jolting ride through a dry, desolate wasteland, they also commented on the beauty of the numerous mountain ranges that punctuated the barren plains and the clear, pure atmosphere of the region. One such account was written by Samuel Bowles, editor of a Springfield Massachusetts newspaper, who took the Overland Mail stage from Salt Lake City to California in the mid-1860s. In his description of the Great Basin between Salt Lake City and Virginia City, Nevada, he noted:

> We are nearly out of the Sage Brush! Nearly into a "white country," where the grass grows green, and water runs, and trees mount skyward and spread sweet shade. Like some of the dry, barren plains that lead up to the Rocky Mountains on the east, the six hundred miles we have come over from Salt Lake to this point, pass through a region whose uses are unimaginable, unless to hold the rest of the globe together, or to teach patience to travelers, or to keep close-locked in its mountain ranges those rich mineral treasures that the world did not need or was not ready for until now. The Basin of the Great Salt Lake . . . is but a south-eastern and most fertile corner of an immensely large intra-mountain basin, that has no water outlet to the ocean, that absorbs all the water developed within its limits, and cries, oh how hungrily for more, whose chief natural vegetable product is Sage Brush, and which holds within its bounds the great, if not the sole, silver mines of the nation.

Bowles went on to comment that through

> this wide stretch of treeless mountain and plain, at its center, – fifty to one hundred miles below the old and more fortunately watered emigrant route along the valley of the Humboldt, – on a nearly straight line west, we have made the most rapid stage ride yet achieved on the great overland line, and the equal perhaps of any ever made of like distance on the Continent.

The stage ride across the Great Basin, according to Bowles, was an event to be long remembered. He commented:

> But our fast ride by the Overland Mail stages from Salt Lake will always be a chief feature in the history and memory of our grand journey across the Continent. The stations of the company are ten to fifteen miles apart; at every station fresh horses, ready harnessed, took the places of the old, with a delay of from two to four minutes only; every fifty miles a new driver took his place on the box; wherever meals were to be eaten, they were ready to serve on arrival; and so, with horses ever fresh and fat, and gamey, – horses that would shine in Central Park and Fifth Avenue equipages, – with drivers, gentlemanly, intelligent and better dressed than their passengers, and a division superintendent, who had planned the ride and came along to see it executed, for each two hundred miles, – we were whirled over the rough mountains and through the dry and dusty plains of this uninhabited and uninhabitable region, rarely passing a house except the stage stations, never seeing wild bird or beast, for there were none to see, as rapidly and as regularly as we could have

15. Myron Angel, ed., *History of Nevada With Illustrations and Biographical Sketches of its Prominent Men and Pioneers* (Oakland, California, Thompson & West, 1881), [Reprint ed., New York, Arno Press, 1973], pp. 104-06.

been over macadamized roads amid a complete civilization. The speed rarely fell below eight miles an hour, and often ran up to twelve. But so wisely was all arranged, and so well executed, that not an animal suffered, to horses and men the ride seemed to be the work of every day, as indeed it was in everything but our higher rate of speed.

But the passengers are content that it should be a single experience for them; they are glad to have had it, but will spare their friends a repetition, – at present. The alkali dust, dry with a season's sun, fine with the grinding of a season's stages and freight trains, was thick and constant and penetrating beyond experience and comparison. It filled the air, – it was the air; it covered our bodies, – it penetrated them; it soared to Almighty attributes, and became omnipresent, and finding its way into bags and trunks, begrimed all our clean clothes and reduced everything and everybody to a common plane of dirt, with a soda, soapy flavor to all.

Then the jolts of the rocks and the "chuck holes" of the road, to which the drivers in their rapid progress could give no heed, kept us in a somewhat perpetual and not altogether graceful motion. There was certainly small sleep to be enjoyed during this memorable ride of three days and nights; and though we made the best of it with joke and felicitation at each other's discomfort, there was none not glad when it was over.

Despite the dry, barren stretches of the Great Basin, Bowles warned his readers not to think that "such a country" was "altogether without beauty or interest for a traveler." He elaborated:

> Mountains are always beautiful; and here they are ever in sight, wearing every variety of shape, and even in their hard and bare surfaces presenting many a fascination of form, – running up into sharp peaks; rising up and rounding out into innumerable fat mammillas, exquisitely shapen, and inviting possibly to auriferous feasts; sloping down into faint foothills, and mingling with the plain to which they are all destined; and now and then offering the silvery streak of snow, that is the sign of water for man and the promise of grass for ox. Add to the mountains the clear, pure, rare atmosphere, bringing remote objects close, giving new size and distinctness to moon and stars, offering sunsets and sunrises of indescribable richness and reach of color, and accompanied with cloudless skies and a south wind, refreshing at all times, and cool and exhilarating ever in the afternoon and evening; and you have large compensations even for the lack of vegetation and color in the landscape. There is a rich exhilaration, especially, in the fresh evening air, dry, clear and strengthening, that no eastern mountain or ocean breeze can rival. In looking out through it at sunset on the starry heavens, and in taking in its subtle inspiration, one almost forgets alkali, and for the nonce does not remember flowers and grass and trees.[16]

With the completion of the transcontinental railroad on May 10, 1869, the United States was joined by rail for the first time. As a result the bulk of trans-Great Basin travel shifted to

---

16. Samuel Bowles, *Across the Continent: A Summer's Journey to the Rocky Mountains, The Mormons, and the Pacific States, With Speaker Colfax* (Springfield, Massachusetts, Samuel Bowles & Company, 1866), pp. 131-40. In 1860 Richard F. Burton, a well-traveled Englishman, went by stage from Salt Lake City to California. His account of the trip from Salt Lake City to Ruby Valley may be found in Fawn M. Brodie, ed., *The City of the Saints and Across the Rocky Mountains to California by Richard F. Burton* (New York, Alfred A. Knopf, 1963), pp. 497-530.

the northern or Humboldt River route. Hence the central route fell into a state of relative disuse.[17]

17. Angel, *History of Nevada*, pp. 102-07.

CHAPTER FIVE
SCIENTIFIC AND GOVERNMENT SURVEYS OF THE GREAT BASIN: 1860s – 1890s

INTRODUCTION

By the outbreak of the Civil War in 1861 much of the Great Basin had been explored and its principal topographic features named and mapped. Many parts of the region, however, remained relatively unknown, and detailed scientific data on the area was lacking. After the conclusion of the war in 1865 the United States undertook the task of obtaining information on this vast expanse. From the late 1860s to the mid 1890s various scientific and government surveys were conducted in the Great Basin to acquire this data. Three of these surveys are significant to this study because of their relationship to the area in which present-day Great Basin National Park is located. These surveys include those conducted by George M. Wheeler, John Muir, and the U.S. Coast and Geodetic Survey.

GEORGE M. WHEELER SURVEYS

Beginning in 1869 the U.S. Army Corps of Engineers commenced extensive scientific exploration and military reconnaissance of the eastern Nevada and western Utah area under the immediate charge of First Lieutenant George M. Wheeler. After graduation from West Point in 1866 Wheeler had assumed official duties as assistant engineer on the survey of Point Lobos and vicinity in the San Francisco Bay area. On March 7, 1867, he was promoted to first lieutenant, and in the fall of 1868 he was appointed engineer on the staff of the Commanding General of the Department of California, in which capacity he soon was engaged in surveying and exploring in the Colorado Plateau region.[1]

In June 1869 Wheeler received orders from Assistant Adjutant General John P. Sherburne to undertake a reconnaissance of southern and southeastern Nevada that would include the area of present-day Great Basin National Park. The orders, dated June 7, 1869, read in part:

> By authority from headquarters Military Division of the Pacific, Lieut. George M. Wheeler, United States Engineers, will proceed with his civil assistants and three enlisted men to either Camps Halleck or Ruby, Nevada, and having been joined by Lieut. D.W. Lockwood, United States Engineers, now *en route* via Fort Churchill, will there organize a party to consist of two non-commissioned officers and twenty-three enlisted men, (cavalry, or infantry mounted,) such drivers, packers, and guides as may be required; equip them with the necessary, full, and complete outfit, as far as the resources of the posts will enable him so to do; after which he will proceed, via the White Pine district, to make a thorough and careful reconnaissance of the district of country to the south and east of White Pine, extending his reconnaissance, if practicable, as far as the head of navigation on the Colorado River, with a view of opening a road thereto from the White Pine or Grant district, of obtaining correct data for a military map of the country, and for the selection of the site or sites for such military post or posts to cover the mining country south and east of White Pine from hostile Indians, as may be required. Such explorations and examinations as may will

1. Richard A. Bartlett, *Great Surveys of the American West* (Norman, University of Oklahoma Press, 1962), pp. 334-36. Pages 333-72 of this book provide an in-depth historical perspective on the Wheeler surveys.

be made in reference to the physical geography of the country, its resources in wood, water, agricultural or mineral productions.

The character, habits, and numbers of Indian tribes, and their disposition toward settlers and miners, will be subjects for investigations.[2]

The Wheeler expedition in 1869 traversed an area of approximately 24,428 square miles, including 24,028 square miles in eastern and southeastern Nevada and 400 square miles in western Utah Territory. The general route followed by Wheeler during the six-month period from June to November was:

San Francisco, Cal., to Halleck Station, Nev., on the Central Pacific Railroad; thence to Camp Halleck, Nev.; thence to Elko, Nev.; thence to Old Fort Ruby, via Huntington Valley; thence to Hamilton, White Pine District; via Long Valley; thence to Cave Valley via Steptoe Valley; thence to Preuss Lake, (so called), Utah, and return; thence to Panacca and Pioche via Cedar, Eagle, and Rose Valleys; thence to West Point via Grape Vine Cañon and Meadow Valley Wash; thence to Las Vegas via mouth of Virgin River, and northern bank of Colorado River to El Dorado Cañon; thence to Indian Spring via Spring Mountain Range; thence to Pahranagat District via Quartz and Summit Springs; thence to Monte Cristo Mill, White Pine District, via Quinn Cañon and Railroad Valley; thence to Camp Halleck via White Pine and Huntington Valleys; thence via Halleck Station to San Francisco.

In some cases he deviated from this route to ascend prominent mountain peaks, traverse adjacent mountain ranges, and visit important mining camps.[3]

Of significance for this study was a side trip taken by a small party of Wheeler's men from Cave Valley to Snake and Spring valleys, Jeff Davis or Union Peak, which the men named for Wheeler, Sacramento Pass which he referred to as Red Cañon Pass, and the Shoshone and Sacramento mining districts. His report on the findings and experiences of this party reads:

Upon the latest published map of Nevada consulted . . . a lake of considerable size, called Preuss Lake, is put down as cut by the eastern boundary of the State. It was determined to send a small party to find out this locality and return to the camp at the cave. . . . The next day a low divide is crossed into Spring Valley, which, like its mate, (Steptoe Valley,) continues, it is said, to the railroad direct, with only low divides between almost continuous depressions. A march of over twenty miles led to a camp opposite Jeff Davis Peak, near the Shoshone Mining District. Camp is made at a small creek with pure and clear water, near ranches that have sprung up in conjunction with the mining camp. Bunch-grass abounds; hay is plenty in the immediate neighborhood, and three or four thousand acres of cultivatable land await the settler.

A few hours are taken for a hasty glance at these mines while the party is moving on. This is done in company with Mr. A.F. White, acting State Geologist

---

2. U.S. Army, Engineer Department, *Preliminary Report Upon A Reconnaissance Through Southern and Southeastern Nevada, Made in 1869, By First Lieut. Geo. M. Wheeler, Corps of Engineers, U.S. Army, Assisted by First Lieut. D.W. Lockwood, Corps of Engineers, U.S. Army* (Washington, Government Printing Office, 1875), p. 7.

3. *Report Upon United States Geographical Surveys West of the One Hundredth Meridian,* Vol. I – Geographical Report, p. 22.

of Nevada, who met us in this vicinity, having been our companion at the Cave for a few days.

The mines are on the western slope of the Snake range, and exposed in a rough break in the side of the mountains, down which a large wash of sand has accumulated, making a ramp to bring one up nearer to the level of the mines. The leads seem wide and well defined, free, also, in a great measure, from the base metals, and ought to work well by the ordinary wet process. There is certainly a good showing for the extraction of a large amount of ore, most of which is likely to be of low grade. But few miners were at work at the time of our visit. Water in the near vicinity of the mines is scarce; being enough for the necessities of the camp. The creek, near which the camp was made the night before, affords a good site for mills. Fuel abundant; lumber to be obtained some eight or ten miles higher up on the same range. The party had gone into camp; some springs of bad alkaline water. Before night fourteen rattlesnakes had been killed, and it was thought not inappropriate to name this place "Rattlesnake Springs." Further acquaintance with the locality proved that it was well to leave a warning in the name for the future traveler.

From this point, the ascent of the mountain known as "Jeff Davis Peak," and considered the highest point between the Sierra Nevada and Rocky Mountain range is made. The summit reached by the moonlight, and a descent to the line of vegetation, where the rest of the men with the pack animals were in camp, is made therefrom. An early start in the morning brought us to the top at 8.30 a. m., and observations for latitude and longitude were taken, the barometer-observations showing an altitude of at least 13,000 feet. The descent was more rapid, but not easy, and night found us back at camp completely exhausted. The next day a march of twenty-three miles is made to Sacramento District, in a pass of the Snake range.

The road all along Spring Valley had been a rude track, lately made by the prospectors of the region. Pure water is found in this mountain-pass. Some little fuel of scant cedar and nut-pine. Generally speaking, the water so far in our course has been found far better in quality and more frequent in place and quantity than had been anticipated. There are only a few places that have been at all alkaline or mineral. This advantage will prove a great one as travel is directed to any points along the eastern border of the State.

This district is situated in Red Cañon Pass of the Snake range, and exposes to view, on the southern side, the mines that had attracted, at our coming, a few miners. The products are both silver and gold, found within a limited compass, and in continuation of the mineral belt to the northward of Shoshone, and which seems to follow several distinct mountain-chains through Nevada. The eastern limit shows slate. No present developments indicate a certainty of large mineral products, yet the average assays have been good, and the ore is easily mined. Chloride of silver appears in a highly crystallized spar, so near approaching quartz in hardness, texture, and appearance that it is hardly possible to distinguish; however, I believe that, so far, no chlorides have been found in a highly siliceous matrix.

The facilities for the benefit of a good mining-camp are favorable. Water sufficient, wood enough for fuel, lumber in limited quantities in the mountains, at not too great distances. Both Spring and Snake Valleys , in the vicinity, are favorable for the production of the various farm-supplies necessary for

sustenance. It is not unlikely that one, or two at least, good leads or deposits will be found.

So far, our intercourse with the Indians had been limited, appearances indicating that in many instances they have fled at our approach. The Shoshones and Gosiutes, in whose country the route had so far lain, have, in years gone by, suffered greatly at the hands of the United States troops, and our guide and interpreter was known to them personally, and the word having been passed along the lines, they had silently taken their departure prior to our coming. This was indicated in two or three instances by the sight of deserted wick-e-ups, and it appears as a well-attested fact that they have a great terror of the soldiers.

Emerging from the pass, near Sacramento District, Snake Valley is entered, and here are encountered some of the Snake Indians, who are in the habit of occupying the valley in planting and harvesting season, raising scanty crops, which they *cache* for the winter use, and then retire to the mountains. Altogether, we have found some two hundred of these Indians, whose chief, Blackhawk, is a shrewd and calculating Indian, undoubtedly of a character superior to the average. These Indians had never received annuities from any source, and had always, according to their own story, been peaceable and friendly to the whites. Some Mormons had farmed a ranch near them, about the center of the valley, but they had never brought anything from the Mormon side.

The second day's march down Snake Valley leads to Snake Creek, at a point that proves to be within half a mile of the Utah line. It had been my intention not to cross this line, as it not only carried me out of the military division of the Pacific, but also out of any proposed or supposed north and south line of communication to the Colorado. However, a part of this detour-trip was for the purpose of finding Preuss Lake, which it still appeared to be of some satisfaction to attempt.

On the afternoon of the 2d August, a start was made, and next day at 5 p. m. Hawawah Springs, in sight of the lake, was reached. The next day brought us to its shores to receive only a disappointment in finding it both salt and brackish to an extreme degree. A night march to the camp at Hawawah Springs was made, and after three days forced marching the more permanent camp in Cave Valley. Our return was upon a rough desert road, made by the Mormons in 1857, when they were looking for places of refuge in case that our troops molested the quietude of their mountain villages.[4]

In his *Preliminary Report Upon A Reconnaissance Through Southern and Southeastern Nevada, Made in 1869,* Wheeler summarized his observations of the region in great detail. some of his comments are of significance to this study because they relate to the Snake Range and adjacent Snake and Spring valleys. In terms of mining, for instance, he noted:

Those mines, including the Sacramento, Snake, Shoshone, and Silver Park Districts, that commence in the Snake range, and follow down along the

4. *Preliminary Report Upon a Reconnaissance Through Southern and Southeastern Nevada, Made in 1869,* pp. 10-12. As a result of this brief side reconnaissance, Wheeler concluded that "the hypothetical lake named 'Preuss,' after Fremont's chief topographer, and hitherto placed on maps as being crossed by the boundary line between Nevada and Utah, was without doubt the alkaline flat (overflowed from Sevier Lake at seasons of high water) lying to the southward of this lake, and between the Hawawah and Beaver Creek Ranges." *Report Upon United States Geographical Surveys West of the One Hundredth Meridian,* Vol. I – Geographical Report, p. 28.

Fortification Hills, seem to be a short, detached belt, not so far extended as the others. Above the Nevada, and on the Schell Creek range, some mineral-districts have been found, but few developments are yet known.

A number of prospectors have at one time and another run over these mountains, only the more energetic of them striking into the rougher parts, where lies the exposure of the mineral. For a long time to come new discoveries will be made, all tending to give a more definite character and continuity of direction to the mineral belts described.

In line with his instructions, Wheeler collected data on the Indians in eastern and southern Nevada. Depending primarily on the observations of Henry Butterfield, his guide and interpreter, Wheeler characterized the various tribes he encountered with such derogatory epithets as indolent, treacherous, and dangerous. He stated:

The various tribes that were encountered are as follows: Shoshones, Gosiutes, Snakes, Pahvants, Utes, and Pah-Utes.

The Shoshones are quite numerous, extending over a large section of country to the south of the Humboldt as far east as the meridian of mountains to east of Ruby Valley, and as far south as 37 degrees 30 minutes of latitude. Small parties of them were seen at Halleck, Elko, Ruby Valley, and White Pine.

The Gosiutes are farther to the eastward and northeast, and extend as far south as the 38th parallel.

Again, to the east are the Snakes, closely analogous in disposition, and occupying a narrow longitudinal slip.

The Pahvants are found only after the Utah line is passed, and most of them are to the east and southeast of Preuss Lake – our farthest station in that direction.

The Indians between Snake and Meadow Valleys are an intermingling of Snakes, or Utes proper, and Pah-Utes, possessing no peculiarities of either, except the treachery of both to a heightened degree.

The number of Indians actually seen or accounted for, after leaving White Pine, was a little less than 2,500. . . . I believe that the greater share of them could be, to a certain extent, domesticated upon *one* reservation, if properly controlled. In their present state, speaking of those below the 38th degree of latitude, the springing up of an intelligent and warlike chief would band them together, and for a time, if there were no military interference, the lives and properties of the settlers would be in danger.[5]

Concerning the agricultural potential of the area traversed, Wheeler observed that of "the twenty-six valleys visited during the season, ranging in elevation from 2,000 to 7,000 feet, but a few of the number possess much agricultural area now titled." He further stated:

Along the lines of greatest depression in most of the valleys visited, alluvial beds of greater or less extent occur, and the limit to their cultivation, except where alkaline matter are in excess, is only governed by the amount of water-

5. More detailed information on the various Indian tribes encountered by Wheeler may be seen in Appendix E.

supply for irrigation that may be made available naturally, since ranching has been taken up in a very desultory manner, with few points for a market, and with little enterprise. Usually a ranchero, turning miner upon the first excitement, and only returning to his ranch when all else fails, but few of the elements that nature presents have been taken advantage of, and irrigation, when applied, has been only of the rudest kind, not following any definite plan. The cereals, corn, potatoes, and many vegetables grow with certainty and yield largely, notably in Ruby, Pahranagat, Spring, Snake, Duck Lake, Cedar, Rose, Eagle, and Meadow Valleys.

The mountain grama-grasses, so common in the plateau and other portions of Arizona, were not noted anywhere this year. The mountain bunch-grass that extends from Montana to the Mexican boundary on the south, varying as to altitude in its different geographical distribution, was noted on every mountain side, without exception, throughout the entire season. Usually it was scant between the lower foot-hills of the valleys and along routes much traveled this season, but thousands, and indeed millions, of acres of this lay along our routes but little of which was available, however, at this time for grazing because of the want of water; for cattle alone, in many cases this can be remedied. This is especially true of Spring, Duck Lake, and Snake Valleys, in which, with success, in my opinion, at many points along the profile of greatest depression, artesian wells could be sunk, bringing sufficient water to the surface for grazing and mining purposes, if not sufficient for irrigation on a small scale.

The stock raised in this section of Nevada is principally confined to cattle and sheep, with a few horses and mules. The former thrive exceedingly well, and since the completion of the railroad find a ready market. It is believed by those having experience, that the quality of beef in the cattle driven from Texas to this section of the country is improved after a few years, on account of the superior quality of the natural grass. This seems likely to be true of all the immense grazing-fields of Nevada, and other portions of the great western interior, and that their value is slowly becoming known can only be looked to with satisfaction, since numerous herds are now grazing in the valley of the Mississippi and on the plains of Texas, on lands gradually becoming so valuable that they will be required for agricultural purposes. We must soon look to the high mountain-areas for their sustenance and propagation. If these grasses will submit to an increase of large herds, or to cultivation, and retain their perennial power, the question of meat-supply for the millions in the United States for years to come is solved.

Wheeler noted that directly "to the north of the Shoshone District, and on the western slope of the Snake range, some of the ravines" were thinly studded with pine of good growth." The pine were "interspersed with fir, also spruce and hemlock." The quantity of timber in the Snake Range was "not large, but sufficient in amount for all local purposes connected with the development of the mines in the vicinity."

According to Wheeler, the area of reconnaissance was not "abundant in game in any of its localities." He noted:

Among large game there deer and antelope are noted. The latter, once abundant in some of the valleys, have been driven away by the approach of civilization. Small droves of five or six were seen occasionally upon the route, but always at distances out of ordinary rifle-shot. The deer that now remain have been hunted to the mountains and ravines by the Indians, and are as rare

as are the summer rains of this climate. They no longer go in herds, but separate, two by two, to seek secure retreats.

Among the small game are found duck, geese, crane, sage-hen, grouse, quail, jack and cottontail rabbits. In some sections the duck are very plenty; especially in Ruby Valley, at Duckwater in Railroad Valley; also in Spring, Snake, and Meadow Valleys. They appear in turn at most of the valley locations where there is clear and living water. They were noticed in the greatest numbers among a nest of lakes in the depression of the valley immediately to the eastward of Patterson District, one of their great breeding grounds.

The principal species are the teal, mallard, and canvas-back; varieties of each were noticed, the former predominating. Geese, more migratory in their habits, were rarely seen, except upon their march for the southward, upon our return, having come from points further north on their way to a winter resort.

Now and then small parties of large sand-hill cranes were encountered, always so shy that no success followed any of the attempts to capture them.

The sage-hen, so well known in Nevada, are found more or less in nearly every one of the valleys, and if not too far advanced in age make a very good dish for the hungry traveler.

Grouse only appear high up among the mountains, where timber is found, and hence at very few points. They are perhaps the most delicate eating of any of the small game and the most difficult to capture.

Rabbits now and then occur, but they are annually decimated by the Indians, who kill them constantly and persistently.

To the sportsmen duck-shooting offers the most legitimate field for pleasure.

An ordinary traveler passing through the country and depending upon game for his food would probably starve; even the Indians, the most expert and incessant of all hunters, are obliged to gather pine-nuts, to supply in a great measure the necessity for food.

In concluding his report Wheeler commented on the ascent of Jeff Davis or Union Peak which the men renamed Wheeler Peak in his honor. He observed:

This name has been given to the most elevated point of the Snake range, which is one of the highest crests between the Sierra Nevada and Wahsatch. It was found by careful barometric observations to be thirteen thousand and sixty-three-feet above sea-level; corroborated by angles of elevation taken from points whose altitudes were determined barometrically, thereby checking errors that are likely to arise from the use of barometric results at such large altitudes.

Our party, consisting of Rev. Mr. White, acting geologist, State of Nevada; Lieutenant Lockwood, Messrs. Hamel and Rahskopff, and the guide, Mr. Butterfield, all succeeded in reaching the top on the morning of the second day, having left camp at Rattlesnake Springs at 2 p.m. Messrs. White, Lockwood, and myself reached the summit at 8 p.m. same evening, but were obliged to return to the limit of vegetation for food and fuel.

> Meteorological observations were taken during the day, as well as those for time and latitude; the latter have doubtless seldom been attempted at a greater altitude. The party by mutual consent, and at the suggestion of Professor White, proposed that hereafter this point should be called Wheeler's Peak, which name has been adopted upon the map.

While on the ascent the men found that the timber line on the flanks of the peak was at 11,500 feet. Above that elevation some "few specimens of the species *Mimulus Moschatos,* were found . . . clinging to damp places in the rocks, where evidently nothing of the shrub variety could exist."[6]

When Wheeler reported on his 1869 reconnaissance, he included recommendations for a general survey extending its operations throughout the West. His suggestions, coming at a time when Brigadier General Andrew A. Humphreys, chief of the Corps of Engineers, was keenly aware of the civilian surveys that had preempted one of the army's traditional, peacetime activities, were promptly taken under serious consideration. Wheeler stressed that the civilian surveys, such as those of the Colorado River by John Wesley Powell, eastern Utah by Clarence King, and Wyoming territory by Dr. Ferdinand V. Hayden, placed greatest emphasis upon geology, and their topographical work was coordinated with the needs of the geologist. The army, however, needed maps that stressed human developments – mines, farms, villages, roads, railroads, and dams. Military topographical maps were, according to Wheeler, more essential to the nation's security than the geological maps produced by Powell, King, and Hayden, because they would stress "astronomical, geodetic, and topographic observations, with map delineations of all natural objects, means of communication, artificial and economic features, the geologic and natural history branches being treated as incidental to the main purpose."[7]

Thus, the Corps of Engineers inaugurated a major full-blown survey program in 1871, placing Wheeler in "charge of the exploration . . . of those portions of the United States territory lying south of the Central Pacific Railroad, embracing parts of Eastern Nevada and Arizona." That year Wheeler traversed some 72,250 square miles, including portions of eastern California, northwestern and central Arizona, southern and southwestern Nevada, and southern Utah.[8]

After Wheeler's complete plan for mapping the West was approved in 1872, he gave his organization the official title of the United States Geographical Surveys West of the One Hundredth Meridian. The exhaustive Wheeler surveys continued until 1879, when Congress terminated the project and created the United States Geological Survey to oversee all future mapping of the nation.[9] During that period, the Wheeler expeditions amassed considerable scientific, topographic and cartographic data that would be of invaluable use to future

---

6. *Preliminary Report Upon a Reconnaissance Through Southern and Southeastern Nevada, Made in 1869,* pp. 27, 39-41, 57-59, 62.

7. Quoted in Bartlett, *Great Surveys of the American West,* pp. 337-38.

8. Information on the 1871 expedition, which excluded the area of Great Basin National Park, may be found in *Report Upon United States Geographical Surveys West of the One Hundredth Meridian,* Vol I – Geographical Report, pp. 30ff; U.S. Army, Engineer Department, *Preliminary Report Concerning Explorations and Surveys Principally In Nevada and Arizona . . . From Brigadier General A.A. Humphreys, Chief of Engineers, Conducted Under the Immediate Direction of 1st Lieut. George M. Wheeler, Corps of Engineers, 1871* (Washington, Government Printing Office, 1872); and U.S. Congress, Senate, Committee on Appropriations, *Letter from the Secretary of War,* S. Ex. Doc. 65, 42d Cong., 2d Sess., 1872.

9. Bartlett, *Great Surveys of the American West,* pp. 350-72.

geographers of the Great Basin region as well as the larger American West.[10] Thus, what had begun as a reconnaissance of eastern and southern Nevada in 1869 grew into one of the largest and most significant topographical surveys of the West.[11]

A JOHN MUIR SURVEY OF THE SNAKE RANGE

During the late 1870s John Muir, a noted naturalist and one of the principal leaders in the early conservation movement in the United States, visited the Snake Range during one of his excursions across the West. While on these travels Muir kept journals and notebooks in which he noted his observations on the flora and fauna, forests, and physiographic features of the country he was traversing. These documents formed the raw materials of his articles and books calling for the conservation and protection of America's natural resources.[12]

After reconnoitering Nevada's forests, Muir wrote a treatise, entitled "Nevada's Timber Belt," at Pioche in October 1878. In this work he described his experiences while ascending the summit of Wheeler Peak. Among other observations, he noted:

> On Wheeler's Peak, the dominating summit of the Snake Mountains, I found all the conifers I had seen on the other ranges of the State, excepting the foxtail pine, which I have not observed further east than the White Pine range, but in its stead the beautiful Rocky Mountain spruce. First, as in the other ranges, we find the juniper and nut pine; then, higher, the white pine and balsam fir; then the Douglas spruce and this new Rocky Mountain spruce, which is common eastward from here, though this range is, as far as I have observed, its western limit. It is one of the largest and most important of Nevada conifers, attaining a height of from sixty to eighty feet and a diameter of nearly two feet, while now and then an exceptional specimen may be found in shady dells a hundred feet high or more.
>
> The foliage is bright yellowish and bluish green, according to exposure and age, growing all around the branchlets, though inclined to turn upward from the under sides, like that of the plushy firs of California, making remarkably handsome fernlike plumes. While yet only mere saplings five or six inches thick at the ground, they measure fifty or sixty feet in height and are beautifully clothed with broad, level, fronded plumes down to the base, preserving a strict arrowy outline, though a few of the larger branches shoot out in free exuberance, relieving the spire from any unpicturesque stiffness of aspect, while the conical summit is crowded with thousands of rich brown cones to complete its beauty.
>
> We made the ascent of the peak just after the first storm had whitened its summit and brightened the atmosphere. The foot-slopes are like those of the

---

10. Scientific information gathered by the Wheeler surveys included extensive geological data on the various mountain ranges in Nevada, Utah, Arizona, New Mexico, and California. For data on the Snake Range see Appendix F.

11. For further data on this topic see "The Wheeler Survey in Nevada," *Harpers New Monthly Magazine,* LV (June 1877), 65-76, and *Report Upon United States Geographical Surveys West of the One Hundredth Meridian,* Vol I – Geographical Report, Part III, pp. 632ff.

12. For more information on John Muir, see Dumas Malone, ed., *Dictionary of American Biography* (New York, Charles Scribner's Sons, 1934), VII, 314-17.

Troy range, only more evenly clad with grasses. After tracing a long, rugged ridge of exceedingly hard quartzite, said to be veined here and there with gold, we came to the North Dome, a noble summit rising about a thousand feet above the timber-line, its slopes heavily tree-clad all around, but most perfectly on the north. Here the Rocky Mountain spruce forms the bulk of the forest. The cones were ripe; most of them had shed their winged seeds, and the shell-like scales were conspicuously spread, making rich masses of brown from the tops of the fertile trees down halfway to the ground, cone touching cone in lavish clusters. A single branch that might be carried in the hand would be found to bear a hundred or more.

Around the dome and well up toward the summit of the main peak, the snow-shed was well marked with tracks of the mule deer and the pretty stitching and embroidery of field mice, squirrels, and grouse; and on the way back to camp I came across a strange track, somewhat like that of a small bear, but more spreading at the toes. It proved to be that of a wolverine. In my conversations with hunters, both Indians and white men assure me that there are no bears in Nevada, notwithstanding the abundance of pine-nuts, of which they are so fond, and the accessibility of these basin ranges from their favorite haunts in the Sierra Nevada and Wahsatch Mountains. The mule deer, antelope, wild sheep, wolverine, and two species of wolves are all of the larger animals that I have seen or heard of in the State.[13]

The following month Muir wrote another paper on "Glacial Phenomena in Nevada" while staying in Eureka. In this document he made note of his observations on the glacial characteristics of Wheeler Peak and the Snake Range:

In the course of explorations made to the eastward of here, between the 38th and 40th parallels, I observed glacial phenomena equally fresh and demonstrative on all the higher mountains of the White Pine, Golden Gate, and Snake ranges, varying from those already described only as determined by differences of elevation, relations to the snow-bearing winds, and the physical characteristics of the rock-formations.

On the Jeff Davis group of the Snake Range, the dominating summit of which is nearly thirteen thousand feet in elevation, and the highest ground in the basin, every marked feature is a glacier monument – peaks, valleys, ridges, meadows, and lakes. And because here the snow-fountains lay at a greater height, while the rock, an exceedingly hard quartzite, offered superior resistance to post-glacial agents, the ice-characters are on a larger scale, and are more sharply defined than any we have noticed elsewhere, and it is probably here that the last lingering glacier of the basin was located. The summits and connecting ridges are mere blades and points, ground sharp by the glaciers that descended on both sides to the main valleys. From one standpoint I counted nine of these glacial channels with their moraines sweeping grandly out to the plains to deep sheer-walled névé-fountains at their heads, making a most vivid picture of the last days of the Ice Period.[14]

---

13. John Muir, "Nevada's Timber Belt," October 1878, in *Steep Trails: California-Utah-Nevada-Washington-Oregon-The Grand Cañon,* ed. by William F. Bade (Boston and New York, Houghton Mifflin Company, 1918), pp. 180-83.

14. "Glacial Phenomena in Nevada," November 1878, in *ibid.,* pp. 188-89.

U.S. COAST AND GEODETIC SURVEY TRIANGULATION STATION ON WHEELER PEAK

By an act of Congress on June 20, 1878, the U.S. Survey of the Coast was renamed the U.S. Coast and Geodetic Survey. The new name of this bureau, which was administered under the Department of the Treasury, reflected the enlarged duties it had been assigned by Congress on March 3, 1871. At that time the field operations of the survey had been broadened to include a geodetic connection between the Atlantic, Gulf, and Pacific coasts of the United States. Soon the 2,500-mile arc of triangulation along the thirty-ninth parallel of latitude was commenced. This was the first large land-scale trigonometrical survey of the nation. When this triangulation survey was completed in 1895 it was considered to be a major achievement in the history of geodesy.[15]

The geodetic survey along the 39th parallel investigated the size and shape of the earth, for which purposes triangulation, traverse, leveling, gravity measurements, and seismological and astronomical observations were necessary. The survey involved the selection of peaks on which triangulation stations were established. From these stations measurements were made, thus creating a triangulation system consisting of a series or network of triangles into which the earth's surface was divided. By measuring the angles necessary to form the triangles with a theodolite, it was possible to fix the positions and distance between the vertices of the triangles. The adjustment of the triangulation was the distribution of the errors, according to the method of least squares, and the reduction of the triangulation was the completion by means of trigonometric calculations of the determination of the triangles.

The theodolite was the primary surveying instrument for measuring horizontal and vertical angles. It was essentially a high-precision transit, consisting of an alidade with telescope, horizontal compass, accurately graduated circles for reading horizontal and vertical angles, and the necessary level vials and reading devices. The telescope was mounted so as to swivel vertically in Y's secured to a revolvable table carrying a vernier for reading horizontal angles.

During 1878-79 the Coast and Geodetic Survey commenced geodetic operations in Nevada and Utah eastward from Lake Tahoe along the 39th parallel. A.F. Rodgers was in charge of the work with assistance from William Eimbeck, who was assigned to cooperate in the selection of stations and to occupy those that were "practicable within the fiscal year." In his annual report for 1879 the Superintendent of the U.S. Coast and Geodetic Survey stated:

> Eastward of Lake Tahoe intervisible stations were readily found, but not related so as to admit of laying out a scheme in quadrilaterals going eastward. Hence, after due examination, a pentagon was adopted, the angles meeting at Genoa Peak, and, in geodetic connection with it, two hexagons, the middle stations of which are within a few miles of the thirty-ninth parallel. By fourteen intervisible stations the work will be advanced due east to a distance of four hundred and fifty miles from the California boundary.
>
> The adjustment of the scheme of triangulation necessitated the ascent of many mountains exclusive of the positions finally adopted. At each of the peaks, Assistant Rodgers carefully measured the angles made by lines

---

15. *Dictionary of American History* (Rev. ed., New York, Charles Scribner's Sons, 1976), II, 87-88. For further data on the history of the geodetic survey along the 39th parallel of latitude, see U.S. Coast and Geodetic Survey, *Geodesy: The Transcontinental Triangulation and the American Arc of the Parallel* (Washington, Government Printing Office, 1900), pp. 571-73, 596-97.

> leading to others, and sketched the outlines of the horizon near the identified stations, and the mountain masses intervening between them and the point of observation. The summits visited for purposes of reconnaissance range in height from eight thousand to upwards of twelve thousand feet.
>
> After traveling in the aggregate more than two thousand miles, Assistant Rodgers closed field operations on the 7th of November, 1878, and reported in person at the office in Washington. At those close of the fiscal year Assistant Eimbeck made preparation for occupying stations of the pentagon in Nevada.

Thus, by 1879 the scheme of triangles stretching from the Yolo Base in the Coast Range of California to Mount Nebo in the Wasatch Mountains in Utah had been established. This scheme included what was known as the "Great Hexagon," which had Wheeler Peak "for its central point" and comprised some 20,730 square statute miles.[16]

During the summer of 1881 the work of primary triangulation in Nevada led to the occupation of the Wheeler Peak station. In his annual report for 1882 the superintendent of the U.S. Coast and Geoditic Survey observed:

> The extension to the eastward of the transcontinental primary triangulation, by the occupation of stations in Nevada, was placed in charge of Assistant William Eimbeck. At the beginning of the fiscal year his party was established in camp upon Mount Callahan, one of the peaks of the Sierra Nevada, having an elevation of upwards of ten thousand two hundred feet. Between June 28 and August 3, 1881, observations of horizontal directions and vertical angles were obtained upon five primary stations, and a number of secondary points. Observations were also made for time, latitude, azimuth, and the magnetic elements. A bench-mark was established on the Nevada Central Railroad, at a distance of about ten miles from the station. This bench-mark was connected with the triangulation, and the difference of elevation between it and the station was determined by observations of vertical angles. This bench-mark and others similarly fixed in position will be available as stations in lines of level of precision, and their reference in elevation to the mountain peaks will greatly facilitate the exact determination of heights.[17]

After establishing the triangulation station on Mount Callahan, preparations were begun to occupy nearby peaks for the purpose of building stations and making observations. Three such peaks were Diamond Mountain near Eureka, White Pine Mountain, and Wheeler Peak, the latter continuing to be referred to as Jeff Davis Peak in Coast and Geodetic Survey documents. While Eimbeck took up permanent quarters at Diamond Peak, H.J. Davis proceeded to Jeff Davis in August 1881. According to the *Ward Weekly Reflex* of August 20, 1881, Davis

> of the U.S. Geodetic Survey, passed through Monday on his way to Jeff Davis Peak, where he will take up a position and remain until December. He will occupy the peak under difficulties, as it is unaccessible to anything that walks on four legs and the nearest water is a mile and a half below the timber line. Above this line it is a day's climb for many to reach the

---

16. *Annual Report of the Superintendent of the U.S. Coast and Geodetic Survey, 1879,* p. 64.

17. *Annual Report of the Superintendent of the U.S. Coast and Geodetic Survey, 1882,* p. 58.

top. Next year a trail will be made to the top of the peak and a station built, which will be occupied for the next four years. The Professor being a man of nerve proposes by means of ropes to give the almost perpendicular wall – a jumping off place of 2,000 feet – on the east side of the peak a thorough examination next summer. Mount Moriah, northeast of Jeff Davis, will also be occupied by a portion of the corps.[18]

By August 25 the instruments on Mount Callahan and nearby peaks were mounted and in readiness for beginning observations. In his annual report for 1882 the superintendent of the U.S. Coast and Geodetic Survey observed:

> These were made at every favorable opportunity, but not without much interruption from the unusually cold and boisterous weather. Horizontal directions were observed upon five primary stations, and upon many secondary objects in twenty positions of the theodolite; double zenith distances were observed upon all primary and many secondary points; observations for azimuth upon Polaris were made with the theodolite in twenty-five positions; for latitude twenty-two pairs of stars were observed for five nights.[19]

In July 1882 Eimbeck was instructed to visit Mount Nebo and Beaver Mountain in Utah and "examine the country from these stations with a view of extending to the eastward the primary triangulation across the Wahsatch Mountains." He was to make observations using a 50-centimeter theodolite. Upon completion of that task, he "was directed to occupy Jeff Davis Peak, near the thirty-ninth parallel." Accordingly, Eimbeck "organized his party for the occupation of Jeff Davis Peak." In his 1883 annual report the superintendent of the U.S. Coast and Geodetic Survey elaborated on the work at the peak during 1882-83:

> Arrangements were made for the transportation of camp outfit and instruments to Lehman's Ranch, in Snake Valley, near the northeastern base of the mountain. Mr. Eimbeck arrived at this ranch on the 22d of September, and, having explored the mountain for the best location of a trail to the top, established two camps: the first at an altitude of seven thousand eight hundred feet, distant about seven miles from the summit; the second about two miles below the summit and at an altitude of eleven thousand feet. The trails having been opened and instruments and camp outfit packed to the top of the peak, heliotroping parties were dispatched to Gosi-ute, Pioche, and White Pine Stations. The work at Jeff. Davis Peak involved the determination of horizontal directions from that station to five other limiting points of a great hexagon, the longest side of which was the line Jeff. Davis Peak-Mount Nebo, one hundred and fifty miles, and the shortest, Jeff. Davis Peak-Gosi-ute, sixty-three miles.
>
> Preparations for observing were delayed by violent storms. On the morning of October 5, after one of these storms, the mercury fell to thirteen degrees above zero, and the snow at camp was a foot deep. The work was pushed, however, at every opportunity of favorable weather, and by November 23 the observations for horizontal directions and for the magnetic elements had been completed. A few days more sufficed to obtain all needful observations for double zenith distances. During November the lowest temperature recorded

---

18. *Ward Weekly Reflex,* August 20, 1881.

19. *Annual Report of the Superintendent of the U.S. Coast and Geodetic Survey, 1882,* pp. 58-59.

was twenty degrees below zero (Fahr.). Field operations were closed and the party disbanded early in December.

In April, 1883, he was instructed to extend the reconnaissance to the eastward of the line Mount Nebo-Beaver by occupying such points as would determine definitely the most advantageous figure for continuing the main triangulation across the Wahsatch Mountains. A change in the position of station "Beaver" for the proper development of this figure appearing unavoidable from previous examinations, he was authorized to establish a new station upon one of the neighboring peaks, so located as not to affect the essential geometrical conditions of the great hexagon, and to refer the observed direction Jeff. Davis-Beaver to the new station of the re-occupation of Jeff.Davis Peak.[20]

During 1882 the brilliancy of the reflected moonlight on Wheeler Peak led to experiments with a selenoscope, an instrument for observing the moon, for occasional night use.

The best account of the technical work conducted at the triangulation station on Wheeler Peak during October-November 1882 appears in the field books and logs of William Eimbeck in the archives of the National Oceanic and Atmospheric Administration. According to Eimbeck, a 20-inch theodolite (C.S. No. 5) was used to make the observations. The instrument "stood accurately centered" on a "copper bolt" marking the triangulation station "mounted and protected in all respects." Eimbeck went on to detail the technical aspects of his labor:

All essential adjustments were carefully made before regular observations were attempted. The adjustments of the microscopes, both with respect to Run and position remained essentially as heretofore and were left undisturbed throughout these obs. The observations were confined to the six directions of the Hexagon excepting a few pointings upon the "cairn" of "Duckwater," a subsidiary station, towards close of the work. As heretofore, all obs. were referred to a "Reference Mark," which was target shaped – 7 ins. wide and about 8 feet high. It was of stone and timber, rigidly framed and set up at a "spur-summit," about 2 mls. distant northwardly from the Δ Station. Its direction is fixed by a copper bolt set in the solid bedrock. The "Mark" was black and stood out distinct against its distant sombre background of sage and sand. As viewed from the Δ Station its Depression was 6° 42'. Owing to this great depression as also that of Pioche Sta. care was taken to always maintain, throughout the obs., close verticality in "center" of the Theodol. Of course the Instrument was not interfered with, on this account during obs. of a series, which were conducted with uniform care and circumspection, precisely in the manner and to the same extent as at station heretofore occupied. This is to say observations were obtained in two, three or more series, in each of the 25 Positions of the Theodol. To balance the + and – connections for "Run" the Positions, which are evenly distributed on the circle, they were set off with considerable precision. And to cancel any errors from the obs. – depending in some way on the hour of the day, they were so made as to balance approx., likewise with respect to number of pointings during the A.M. and P.M. hours of the day. The obs. during the noon hours, which were undertaken for the sake of pushing the work, were classed as P.M. obs. The signals observed upon in the case of the six

---

20. *Annual Report of the Superintendent of the U.S. Coast and Geodetic Survey,* 1883, pp. 68-69. The station on Jeff Davis Peak was probably built like others of its kind – rock about five feet in height, furnished with a tent covering.

primary directions, were heliotropes, mounted upon rigid stands about 5 feet above the ground and accurately in the vertical of the station mark. In the case of Mt. Nebo sun-light was reflected from a mirror 4 ins. square and showed well at all times on that length of line, viz. about 150 mls.[21]

While conducting the geodetic survey along the 39th parallel, the Coast and Geodetic Survey participated in the international efforts to observe the Transit of Venus on December 9, 1874, and again on December 6, 1882. Under the auspices of the Transit of Venus Commission observations of the rare event were made, and triangulation measurements were conducted to determine the distance from the earth to the sun.[22] Thus, while he was at Lehman's Ranch in Snake Valley on December 6, 1882, Eimbeck conducted observations of the Transit of Venus.[23]

During 1883 further triangulation work was carried out in eastern Nevada and western Utah – work which included the reoccupation of Jeff Davis Peak. This season's work was described at length in the annual report of the Superintendent of the U.S. Coast and Geodetic Survey for 1884:

> The development of a single definite figure, as above described, was all that was contemplated in carrying on the reconnaissance. Hence, on completing the examination at the Tushar Mountains, further reconnaissance work was suspended, and the party was transferred to Jeff. Davis Peak, the re-occupation of which was rendered necessary by the abandonment of "Beaver" station and the substitution for it of "Belknap." After a tedious and toilsome journey through two hundred miles of a desolate country, the party arrived at Lehman's Ranch, near the eastern base of Jeff. Davis Peak on the 19th of July and at once began preparations for the ascent of the peak, which rises to a height of thirteen thousand one hundred feet. By the 26th of July camp was established at the summit.
>
> Three days' observations would have sufficed to determine the difference in directions of the heliotropes at Beaver and Belknap, but owing to thunder-storms, which hung almost constantly over the peak, and the distant mountains as well, it was the 6th of August before all of the observations needed could be obtained. Mr. Eimbeck remarks that the trials of the ten days' life of the party among the clouds were more severe and dangerous than had been experienced for several years. The violence of the electric discharges, the thunder-claps, and the energy of the piping sound of the escaping electricity was not unfrequently so alarming that the party had to seek safety behind and under ledges of rock some distance below the summit of the peak, which was often struck by lightning. The tent occupied by the men was also struck, but fortunately at a time when no one was in it.

---

21. U.S. Coast and Geodetic Survey, Carlile P. Patterson, Superintendent, Section XVI, State: Nevada, 34098, Observations of Horizontal Directions, Locality – Jeff Davis Pk. Δ Station, White Pine County . . . . 1882, Chief of Party – William Eimbeck, 5 Vols., Vol. I, Archives, National Oceanic and Atmospheric Administration, Rockville, Maryland.

22. *Dictionary of American History,* II, 88, and E.A. Fath, *The Elements of Astronomy* (New York, McGraw-Hill Book Company, Inc., 1955), p. 183.

23. A copy of Eimbeck's report on his observations of the Transit of Venus at Lehman's Ranch may be seen in Appendix G.

> The work of the season to [October 1] . . . includes, besides the usual observations of horizontal directions and vertical angles, together with the necessary meteorological observations, determinations of time, latitude, and azimuth, and a complete set of observations for magnetic declination, dip, and intensity. Occasion was taken also, especially when at Lehman's Ranch, to carry out local triangulations, connecting the State boundary between Nevada and Utah, and thereby the land surveys of those two States with the geodetic work. The station near Lehman's Ranch at which the Transit of Venus of 1882 was observed by Mr. Eimbeck was connected with the main triangulation at Jeff. Davis Peak and at Pioche.
>
> From Jeff. Davis Peak a new determination was made of the azimuths of the reference marks of Tres-Pinos and Snake Valley magnetic stations, as occupied during the previous season.[24]

While engaged in the summer triangulation work in 1883 Eimbeck prepared a detailed description of the ice mass on Jeff Davis Peak. While Simpson had noted the presence of snow on the peak in late July 1859 and the Wheeler surveys and Muir had commented on the glaciers near the summit, Eimbeck described the ice mass in detail. He passed this information, along with a sketch, to the U.S. Geological Survey, which printed the data in its 1883-84 annual report. The treatise, entitled "Permanent Ice On the Mountains of the Great Basin," stated:

> The arid region of interior drainage included between the Sierra Nevada and the Wasatch Mountains, known as the Great Basin, is diversified by many rugged mountain ranges, some of which attain an altitude of from 10,000 to more than 13,000 feet. The climate is arid and the country desert-like throughout. . . . A region more unfavorable for the formation of glaciers could scarcely be found; yet, as shown by the observations of Mr. William Eimbeck, of the United States Coast Survey, there is a body of ice on Jeff Davis peak, one of the highest mountains in the Great Basin, that approaches the condition of a glacier, and indicates that a moderate lowering of temperature would cause glaciers to form on the higher peaks in the central and northern part of the Great Basin. That a moderate climatic change would produce such a result is also evident from the fact that during the glacial epoch, when the higher mountains of Utah and California were buried beneath vast *névé* fields, some of the intermediate ranges, including Jeff Davis Peak, also bore glaciers.
>
> The most striking feature of the mountain is the deep, broad chasm, dividing the no doubt once continuous hog-back ridge into two distinct peaks, as shown in the accompanying sketch. Measured along the crest line the width of this chasm is 4,000 feet, and its depth not less than 2,000 feet. It lays open to view the entire geologic structure of the mountain, and deep down in the shadow of its walls lies an ice-body, hidden and effectually protected against the direct influence of the sun. When seen in August, 1883, this ice-mass was about 1,500 feet in length, with an average width of about 200 feet. Its depth could not be determined, but was apparently between 20 and 30 feet. The surface of the ice was without fissures or moraines, yet evidently possessed a definite structure as indicated by different tints and shades of bluish green. The average dip of the ice is about 50°, and its elevation above the sea 11,800 feet. Nothing resembling a moraine could

---

24. *Annual Report of the Superintendent of the U.S. Coast and Geodetic Survey, 1884,* pp. 78-79.

be seen near the foot of the ice, but ancient moraines occur about a mile down the cañon, which record the lower limit of the ice-stream which formerly flowed from the same *cirque* that shelters the present ice-body.

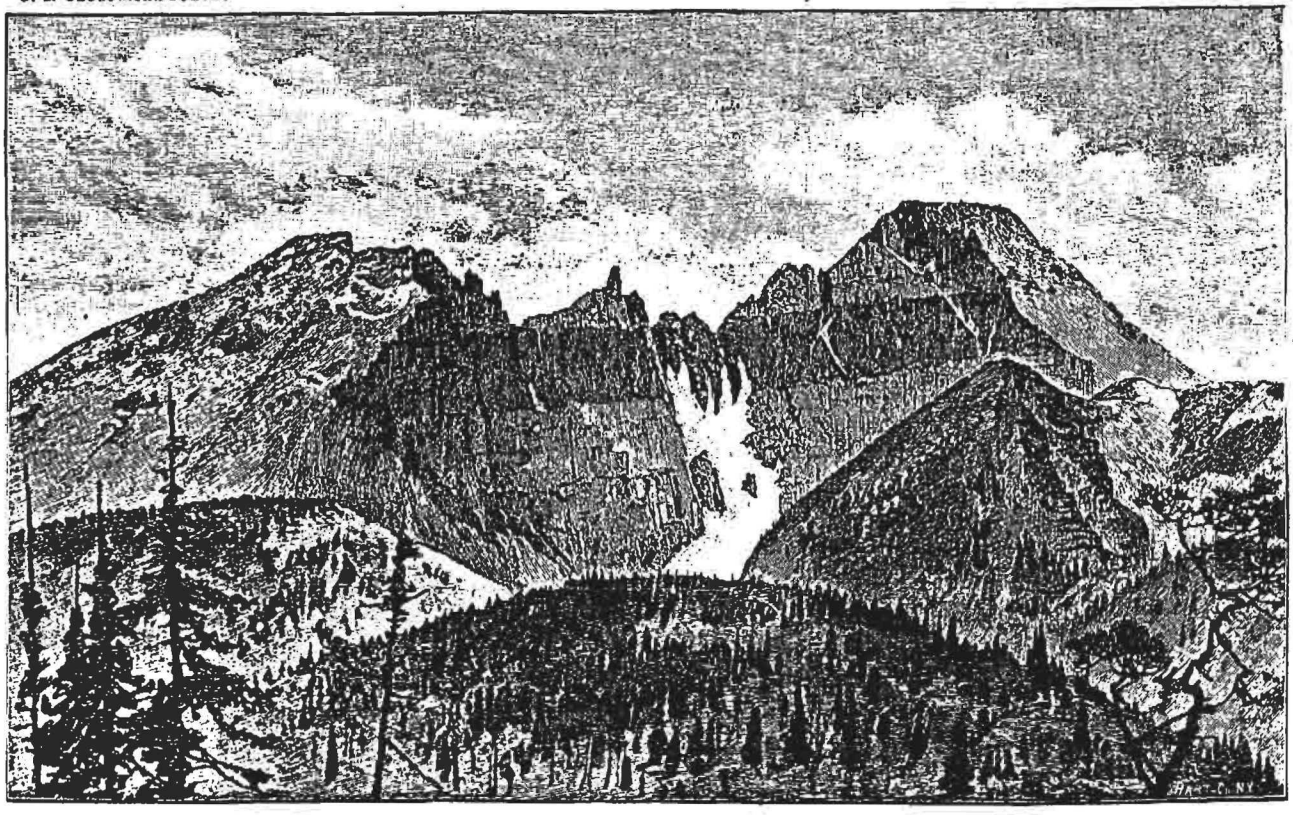
Records of ancient glaciers on Jeff Davis Peak were observed by Mr. Gilbert in 1872, who considers the small lakes on the northern slope of the mountain as being confined by morainal deposits. This mountain is thought to be the highest in the Great Basin, and, with the exception of the East Humboldt Mountains, is the only one known to retain snow or ice about its summit throughout the year.[25]

Triangulation observations to Jeff Davis Peak continued from Utah Territory during the late 1880s. In 1885 measurements were made from Mount Tushar (earlier known as Mount Belknap), Mount Nebo in 1886, and Pilot Peak and Ibapah in 1888-89.[26] The last series of observations to Jeff Davis Peak was completed in 1889. These operations were described by the Superintendent of the U.S. Coast and Geodetic Survey in his annual report for 1890:

Having organized his party before the beginning of the fiscal year and made all arrangements needed for the occupation of Pilot Peak, the 1st of July, 1889, found Mr. Eimbeck on the summit of the peak, establishing camp and mounting the instruments.

25. *Fifth Annual Report of the United States Geological Survey, 1883-84*, pp. 342-43. A copy of Eimbeck's sketch of Jeff Davis Peak may be seen on the following page.

26. *Annual Report of the Superintendent of the U.S. Coast and Geodetic Survey, 1886*, p. 89; *1887*, p. 86; *1889*, p. 91; and *1890*, pp. 89-90.



SKETCH OF JEFF DAVIS PEAK, NEVADA.

> Observations of horizontal directions and double zenith distances were begun July 3. The number of primary points observed upon was six, counting the reference mark as one. Two of the longest lines of the Utah work were included, Pilot-Nebo, and Pilot-Jeff Davis, both approximately 148 miles long. Work upon the secondary points was also made as complete as possible, including several of the points connecting with the Terrace and Lucin base-line, 37 kilometres in length, which had been measured along the Central Pacific Railroad by Lieutenant Wheeler when he was in charge of surveying parties in this region. All of these points are marked by substantial rock monuments or cairns.[27]

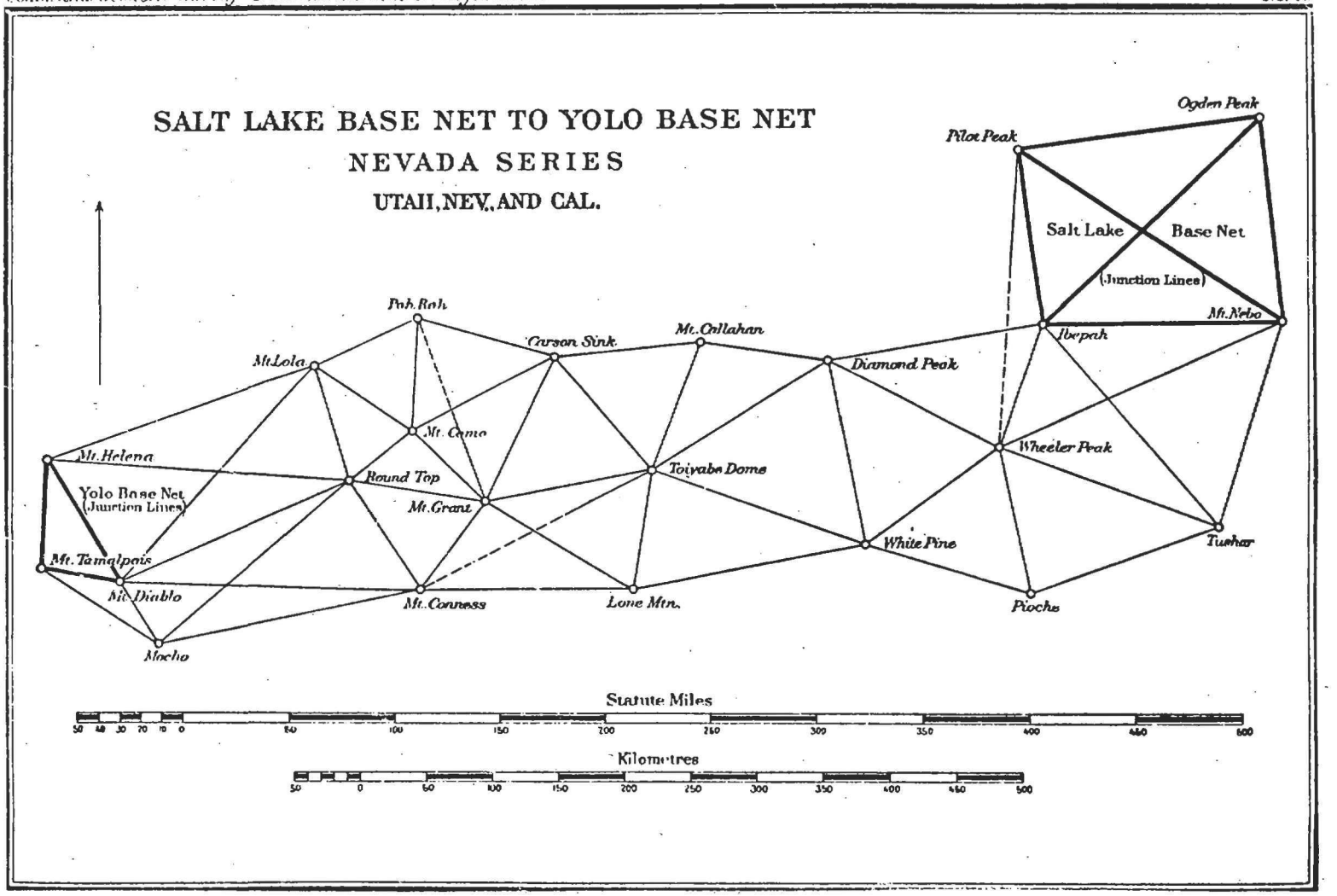
In 1895 the 2,500-mile arc of triangulation along the 39th parallel was completed. Five years later the bureau published a report on the history, findings, and accomplishments of the geodetic survey. That portion of the triangulation between the Salt Lake Base Net and Yolo Base Net in the Coast Range of California was known as the Nevada Series. One of the triangulation stations for this series was Wheeler Peak.[28] Commenting on the topography between the two base nets, survey officials noted that the mountains were

> remarkable chiefly for parallelism and uniformity in an approximate northerly and southerly trend. These singular ranges, with their features preserved for a hundred miles, appear like solidified waves crested through folding. The corrugations, or parallel ranges, seem to follow each other at regular intervals throughout that large expanse of the State here under special consideration. While the valleys are nearly level and between 5 000 and 6 000 feet above the sea, the ridges rise on the average to over 10 000 feet (or 3 150 meters, nearly) and culminate at Wheeler Peak at an altitude of over 13 000 feet (3 973 meters, nearly). Their profile or crest lines are rugged and rocky and in some instances difficult of access. Though the topography may be intricate in ascending one of the transverse canyons, nearly every one of the stations was found to have an accessible slope. Excepting a few valleys in Utah and in west Nevada along the Carson and Humboldt, put partly under cultivation by irrigation, this entire basin is an arid and barren waste, irredeemable for want of flowing water; little or none is found anywhere except in the rills coming down from timber patches and meadows of the uplands of the most prominent ranges. The lower declivities of the ranges and the intervening low alkali lands covered with sage brush are equally sterile. The general aspect of the country is dull and monotonous. Only between the 7 000 and 11 000 feet levels are to be found an assemblage of clusters of pines, alpine meadows, and water supply from springs or melting snow. Except for an occasional well dug at some way station, stretches of country from 40 to 60 miles would be without water.

---

27. *Annual Report of the Superintendent of the U.S. Coast and Geodetic Survey, 1890,* p. 89.

28. A copy of the triangulation system for the Nevada Series may be seen on the following page.


SALT LAKE BASE NET TO YOLO BASE NET
NEVADA SERIES
UTAH, NEV., AND CAL.
Ogden Peak
Pilot Peak
Salt Lake
Base Net
(Junction Lines)
Mt. Nebo
Ibapah
Diamond Peak
Wheeler Peak
Tushar
White Pine
Pioche
Lone Mtn.
Mt. Callahan
Carson Sink
Pah Rah
Mt. Lola
Mt. Como
Mt. Helena
Round Top
Toiyabe Dome
Yolo Base Net
(Junction Lines)
Mt. Grant
Mt. Tamalpais
Mt. Diablo
Mt. Conness
Mocho
Statute Miles
Kilometres

According to the final report, the triangulation system of the Nevada Series had been established "on the longest scale conformable to the natural topographic features of the country . . . attaining as well the practical solution of the problem demanded by the trigonometric connection of that part of the coast of California which lies in the vicinity of latitude 39° with the crest of the Sierra Nevada lying opposite to it." Under the immediate direction of Eimbeck, an average of two triangulation stations had been operated each season, the occupation of each requiring about two months. The seasons during which operations were conducted generally lasted from June to November, although scarcely a season passed without a party being weather-bound by storms in October. At one point in 1882, for instance, a party on Wheeler Peak was practically buried in a snowdrift ten to twelve feet deep, the temperature plummeting to 20 degrees below zero Fahrenheit. The high snowdrifts "covered the living tents to within a foot or two of the apex," thus saving the party from freezing to death. So that observations could be continued from Wheeler Peak "deep and broad trenches had to be cut through the snowdrifts in the line of sight." This party, as well as those at Tushar, Ibapah, and Mount Nebo, suffered much from the intensity of the cold wave, and "the value of the services of these men, two at each station "could not be overestimated."

Some changes in procedures were made during the triangulation work on the Nevada Series. Throughout the region the equalization of the number of measures of horizontal directions at a station taken in the forenoon and afternoon was put into effect in 1880. The purpose of this procedure was to eliminate any effect of unequal heating of the theodolite as well as to provide against possible lateral refraction along the lines of sight. Thus, observations of zenith distances were made at three different periods of the day.

The geodetic point on Wheeler Peak was situated on the "western or highest prong of the double peak" and was "marked as a subsurface mark" by "a half-inch copper bolt set in solid rock in the center of the foundation pier for the theodolite." The pier was "covered by a stone slab having a three-fourths-inch drill hole in its center, securely cemented in the top as a surface mark." The "vertical circle station" was "located to the eastward of the geodetic point, distant 173.06 feet, and both points were surrounded with circular stone walls, which were left standing." Three drill holes served as reference marks on the peak – "one north, distant 8.17 feet; one in a southeast direction, distant 8.53 feet; and one in a southwest direction, distant 7.87 feet, from the geodetic point."[29]

The report stated further that "much that has been said respecting the movements of the party, its organization, labor, exposure, and work in the Rocky Mountain section applies also to the Nevada-California section." Moreover, the "instruments and methods of observing were the same as in the Rocky Mountain section." Thus, it is important to examine the portion of the report devoted to the Rocky Mountain Series.

According to the report, the principal "drawback" to the prosecution of the triangulation work "was the almost total absence of modern ways of transportation, ordinary freight wagons and pack animals being the only means available." The document described the common difficulties of transportation:

> The wagon roads had frequently to be made passable by building bridges across gullies. Lower camps were established at the end of transportation by wagon, and a pack trail was located and opened to the upper camp, usually distant 5 to 10 miles, and involving much cutting of fallen timber, grading, and blasting or quarrying of rocks; the ascent was usually between 3,000 and 7,000 feet. Ordinarily about 10,000 pounds (say, 5,000 kilograms)

29. *Geodesy: The Transcontinental Triangulation,* pp. 571-73, 596-97.

of outfit, instruments, and provisions had to be transported to the upper camp – usually two weeks' labor – for which purpose from 5 to 7 pack mules were employed, each carrying as a load about 150 pounds – rarely and exceptionally as much as 200 pounds – according to length of trial, steepness, and height of ascent. The transportation of the great theodolite, weighing with packing box about 200 pounds, required from one to two days. Sometimes it was carried by hand; at other times it was drawn by a horse and guided by men. This was accomplished by men carrying and guiding it while a horse was pulling it by means of a rope.

Considerable work on the mountain tops, according to the report, was required preparatory to establishing the triangular stations. The instruments

were mounted on masonry or rock, the observer stood upon a raised floor, and the whole was walled in and surmounted by a stout canvas tent in order to break the force of the wind. The theodolite stood upon its iron position stand, and was effectively protected against direct sunlight and radiant heat by the double-walled and double-roofed observing tent. As the occupation of a station covered about one month, only two principal stations a year could be disposed of, since the favorable season lasted but four months. The reconnaissance was made by Assistant Eimbeck *paŕi passu* with the occupation of the station. The party of occupation was composed of three officers and a recorder, with the necessary complement of men acting as packers, drivers, and cooks, the whole party consisting of 12 or 13 persons. The heliotropers stationed in pairs at the distant stations numbered from 10 to 20, according to the requirements of the figure of the triangulation. In consequence of their long connection with the work, these heliotropers had acquired the needful training and familiarity with their duties; they lived in tents or stone cabins or "dugouts," close to their stations, and considering the exposure and isolation of their positions it must be conceded that they acquitted themselves well of their trying and responsible duty.

With few exceptions "the horizontal directions and zenith distances were observed upon heliotrope light." The report described the instruments and methodology of making observations:

As a rule the reflectors were of square shape, varying in dimensions from 1 to 6 inches, and as a matter of experience it was found that a 3-inch mirror sufficed for lines of from 80 to 100 miles, but 4-inch mirrors were needed for lines of 100 to 150 miles; the longest line demanded a square mirror of 6 inches (15 centimeters). The signaling or call lights used at the observing station consisted of reflectors from 8 to 12 inches (20 to 30 centimeters) in size; these powerful lights were easily discernible with the unaided eye by the heliotropers, even up to distances of 150 statute miles (240 kilometres), and served them for directing their mirrors at the beginning of an occupation of a station; they were also used for communication. On long easterly and westerly oriented lines the curious phenomenon of getting the reflected sunlight thrown to the station *at which the sun was already below the horizon*, was frequently observed, and at times lasted several minutes.

The horizontal directions at all the stations were observed with the 50-centimeter (20-inch) theodolite, originally in 19 . . . positions of the azimuth circle. The intention was to secure two full sets in each position and to balance the number of observations of the morning and evening, but on account of unavoidable broken series their numbers had generally to be

increased for each position. Respecting the time of observations, they were made from sunrise till 8 o'clock, and resumed in the afternoon at half past 4 o'clock and continued till sunset. The seeing was usually better in the morning than in the evening; excessive brilliancy of the light was screened off by breathing upon the ocular. The focal length of the instrument is 106 centimeters (42 inches), and the magnifying power, using the "half-inch" eyepiece, 83 diameters. A zero or reference mark was used at all stations; it generally was a black target of such dimensions as to present an apparent angular width of 16 seconds. To secure observations under a variety of atmospheric conditions, observations were extended over twenty or more days. Double zenith distances for heights of stations were observed at three different periods of the day, viz, between 6-1/2 and 8 o'clock in the morning, between 11-1/2 and 1 o'clock, and again between 4-1/2 and 6 o'clock in the evening. This brought to light the fact that the minimum refraction of the day occurs late in the afternoon, even after the heat of the day has passed. As a rule these vertical angle measures were spread over not less than twelve days, at least for the main lines. Since the vertical circle was necessarily mounted eccentrically and at a given height above the station mark, the heliotrope also being at a certain elevation, a reduction of the observed zenith distances to refer them to a line "from ground to ground" was required. No simultaneous reciprocal zenith distances were obtained.

The triangulation parties also "made observations of the magnetic declination, dip, and intensity, and meteorological notes were regularly kept."

To "adequately" describe the triangulation stations and their approaches a "rough topographic survey was usually made of the region immediately surrounding it and covering from a few to, maybe, 20 square miles." This "topographical knowledge" was also useful "to form a judgment of the probable deflection of the vertical." The triangulation parties determined "a comprehensive number of second order points for general topographic purposes." These points were "mostly principal mountain peaks, and were marked, when accessible, by a cairn conical in shape, about 6 feet high and 4 feet in diameter at the base." Every "principal station" was "marked by a copper bolt in the rock or masonry, but not infrequently bolts" were "placed in a north, south, east, or west direction (tree) where bedrock" permitted "and just outside the ring wall." The "extra bolts" could "not be mistaken for the central or station bolt so long as the wall or masonry" remained "intact."[30]

In 1906 the U.S. Coast and Geodetic Survey triangulated a small area at Ely, Nevada, in connection with the survey for a special map. Under the supervision of Fred McLaughlin four primary stations were occupied, and several secondary points cut in from them. The positions, distances, and azimuths depended upon the points on Wheeler Peak and Ward North, the former a primary and the latter a secondary station.[31]

---

30. *Ibid.*, pp. 552-54. In recent years considerable attention has been devoted to the presumed designation of the station on Wheeler Peak as a heliograph station, such as those used by the U.S. Army during the Indian wars in the American Southwest during the 1860s. Based on the research documentation gathered by the author of this study, it appears to be a well-substantiated fact that the station was a U.S. Coast and Geodetic Survey triangulation station associated with the survey of the 39th parallel. It is safe to infer, however, that the signal used at Wheeler Peak was that of a heliotrope instrument. This determination was confirmed in correspondence between the author of this study and Elizabeth B. Wade, Chief, Horizontal Network Branch, National Geodetic Survey, National Oceanic and Atmospheric Administration on February 10 and April 19, 1989.

31. U.S. Coast and Geodetic Survey, *Triangulation and Primary Traverse for 1906, 1907, and 1908* (Washington, Government Printing Office, 1909), pp. 411-14.

The triangulation site on Wheeler Peak was examined by U.S. Coast and Geodetic Survey personnel on three occasions in 1925, 1944, and 1957. The data compiled during these field investigations may be seen in Appendix H.

CHAPTER SIX
MINING DEVELOPMENT IN THE SOUTHERN SNAKE RANGE

INTRODUCTION

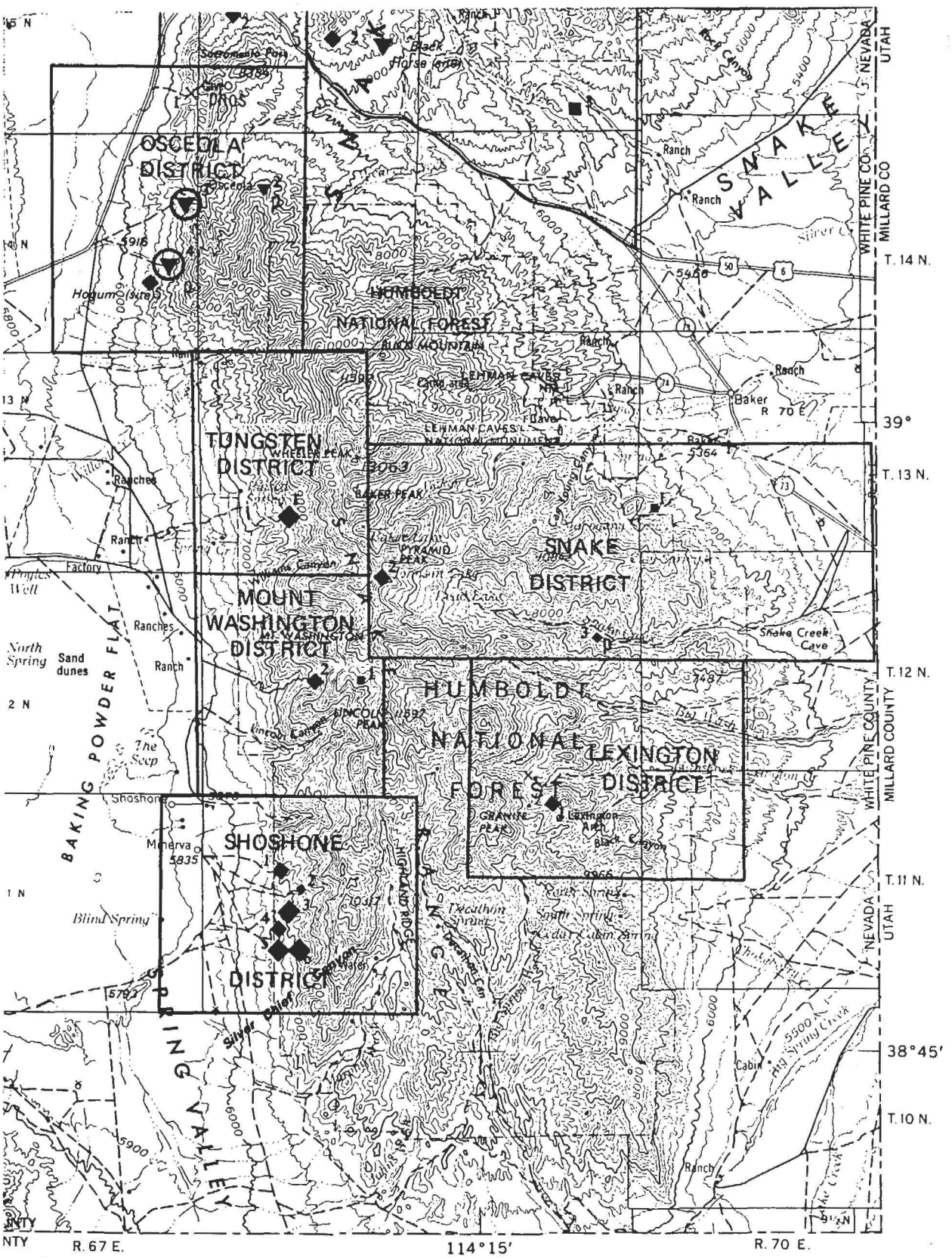
In the wake of the White Pine mining rush of the late 1860s six mining districts were established in the area of present-day Great Basin National Park between 1869 and 1900. These included the Snake (Bonita), Shoshone (Minerva, Lexington, Tungsten), Mount Washington (Lincoln), Osceola (Weaver Creek, Summit Diggings, Hogum, Willard Creek), Tungsten (Hub, Lincoln, Shoshone), and Lexington (Lexington Canyon, Shoshone) districts.[1] The purpose of this chapter will be to provide a historical narrative of the White Pine mining rush and the mining development in each of these districts.

Because the mining districts were generally established before townships were surveyed, the districts were described in general terms flexible enough to allow for new discoveries in each recording area. This practice led to some overlapping of district boundaries at times. In this study the arbitrary boundaries for the districts as used by the Nevada Bureau of Mines and Geology in its Bulletin 85, *Geology and Mineral Resources of White Pine County, Nevada* (1976) will be followed. Since the mining districts have been known by different names at various times, the district names in this study will follow those used in the bulletin.[2]

---

1. Data on the geology of the Snake Range as it relates to mining may be found in U.S. Geological Survey, Bulletin 208, *Descriptive Geology of Nevada South of the Fortieth Parallel and Adjacent Portions of California*, by Josiah Edward Spurr (Washington, Government Printing Office, 1903) , pp. 25-36; Nevada Bureau of Mines and Geology, Bulletin 85, *Geology and Mineral Resources of White Pine County, Nevada* (Reno, Mackey School of Mines, University of Nevada, 1976), Part I "Geology," by Richard K. Hose and M.C. Blake, Jr., pp. 3-32; and U.S. Geological Survey, Geological Survey Professional Paper 668, *Hybrid Granitoid Rocks of the Southern Snake Range, Nevada*, by Donald E. Lee and Richard E. Van Loenan (Washington, Government Printing Office, 1971).

2. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, "Mineral Resources," by Roscoe M. Smith, p. 39. A copy of a map accompanying Bulletin 85 that shows the boundaries of the six mining districts may be seen on the following page.


OSCEOLA DISTRICT
HUMBOLDT NATIONAL FOREST
TUNGSTEN DISTRICT
MOUNT WASHINGTON DISTRICT
SNAKE DISTRICT
HUMBOLDT NATIONAL FOREST
LEXINGTON DISTRICT
SHOSHONE DISTRICT
SNAKE VALLEY
BAKING POWDER FLAT
SPRING VALLEY
NEVADA
UTAH
WHITE PINE CO
MILLARD CO
WHITE PINE COUNTY
MILLARD COUNTY
T. 14 N.
T. 13 N.
T. 12 N.
T. 11 N.
T. 10 N.
39°
38°45′
R. 67 E.
114°15′
R. 70 E.
Baker
Shoshone
Minerva
Ranch
Ranches
Factory
Sand dunes
Blind Spring
Snake Creek Cave
Lexington Arch
Black Canyon
Silver Chief Canyon
Big Spring Creek
Cabin

WHITE PINE MINING RUSH

The discovery of the Comstock Lode in western Nevada in 1859 led to one of the greatest mining rushes in the Great Basin. Here on the south flank of the Virginia Range, one of the richest silver deposits in the world lay shallowly buried beneath the surface. Its discovery led to the establishment of mining centers at Gold Hill and Virginia City and quickly transformed the sparsely settled frontier into a thriving and bustling mining center. Thousands of miners were attracted to the area, the greatest majority crossing the Sierra Nevada from the dwindling gold fields of the Mother Lode in California.

After five years of extensive development the Comstock Lode was struck in 1864 by a general mining depression as a result of the near depletion of its early discoveries. This depression lasted until the discovery of deeper and richer deposits following 1867. This depression, however, aided the development of outlying mining districts throughout Nevada in that prospectors and miners, discouraged with the decline of the Comstock, fanned out searching for other bonanzas.[3]

This search led to numerous mining discoveries in central, eastern, and southern Nevada. Mining rushes, for instance, developed around the boom towns of Aurora in 1860-61, Austin in the Reese River Valley in 1862-63, and Eureka in 1864. Other rushes developed in the Humboldt Range in 1860-62 and the Pahranagat and Meadow valleys in 1864-65.[4]

Miners continued to spread throughout eastern Nevada in search of new mineral deposits. In spring 1865 prospectors from Austin explored eastward until their attention was drawn to the prominent White Pine Mountain (present-day Mount Hamilton). Near the head of Mohawk Canyon they discovered evidence of silver deposits and soon established the White Pine Mining District.

The mining district was a fundamental example of popular sovereignty. In the absence of a federal code to govern the orderly exploitation of mineral lands, the miners made their own laws. These regulations were eventually recognized by state and federal courts as legally binding. California's "Forty-Niners" began the practice of establishing mining districts and took it with them when they spread to other areas such as Nevada.

With the initial discovery of mineral deposits in a new locality, the first miners at the site formed a mutually binding compact which would govern all others who came to the new location. The resident miners at the new discovery held a mass meeting and declared a

---

3. John Michael Bourne, "Early Mining in Southwestern Utah and Southeastern Nevada, 1864-1872: The Meadow Valley, Pahranagat, and Pioche Mining Rushes" (Unpublished M.A. thesis, University of Utah, 1973), p. 85, and Robert B. Merrifield, "Nevada, 1859-1881: The Impact of an Advanced Technological Society Upon a Frontier Area" (Unpublished Ph.D dissertation, University of Chicago, 1957), pp. 122 ff.

4. *The Silver Mines of Nevada* (New York, William C. Bryant & Co., 1864); *J. Ross Browne's Illustrated Mining Adventures: California & Nevada, 1863-1865* (Reprint ed., Balboa Island, California, Paisano Press, 1961); Donald R. Abbe, *Austin and the Reese River Mining District: Nevada's Forgotten Frontier* (Reno, University of Nevada Press, 1985); Oscar Lewis, *The Town That Died Laughing: The Story of Austin, Nevada; Rambunctious Early-Day Mining Camp, and Of Its Renowned Newspaper, The Reese River Reveille* (Reno, University of Nevada Press, 1986); Lambert Molinelli, *Eureka and Its Resources: A Complete History of Eureka County, Nevada* (Reno, University of Nevada Press, 1982); J. Ross Browne, *Resources of the Pacific Slope* (New York, D. Appleton and Company, 1869), pp. 395 ff.; and Nevada Bureau of Mines, Report 7, *Outline of Nevada Mining History* (Reno, Mackey School of Mines, 1964), Part I, "An Outline of the Mining History of the State of Nevada (1855-1923)," by Francis Church Lincoln, pp. 3-6.

self-governing mining district to be in existence. The district would include the new discovery and its environs and would exist as long as it was needed.[5]

About a dozen miners assembled on the slopes of White Pine Mountain on October 10, 1865, to establish the White Pine Mining District, an area encompassing some twelve square miles. Under the leadership of Robert Morrell as president, the group agreed to allow each claimant two hundred feet on any "lead" in the district with a right to follow all "dips, spurs, angles, offshoots, outcrops, depths, and variations" wherever they might lead. In accordance with established practice, the discoverer of any new "ledge or lode" was to receive a double claim. After locating his claim, the prospector was required to post a written notice on the ground and record his location within fourteen days. District laws could not be amended, altered, or repealed for two years.

As usual, the recorder was the key man in the mining district, and Thomas J. Murphy was elected to the job for a two-year term. It was his duty to keep a "full and truthful" record of the proceedings of all public meetings of the miners, to record all claims and notices brought to him in the order of their date, and to make certain new claims did not conflict with the old. The recorder's books were to be open at all times for public inspection, but they were not to be examined except in his, or his deputy's, presence, thus preventing alteration of the records. An unusual decision was made when the recorder was not required to reside in the district, thus permitting him to leave the district temporarily in search of better prospects during his two-year term as long as he designated a deputy to act in his absence. If he were unable to perform his duties during his term of office, a successor could be elected at a meeting called upon the petition of fifty miners in the district, provided there were that many around. Notices of the meeting call were to be posted in the district and advertisements placed in the Reese River newspapers for thirty days so interested parties could arrange to attend. Accordingly, equality of opportunity was preserved and the democratic process provided for under specified conditions, and the founders made certain that they controlled the district, at least until its potential could be determined.[6]

Despite establishment of the White Pine Mining District, little work was done until 1866, when three partners – Murphy, Marchand, and Leathers, organized the Monte Cristo Mining Company with financial backing from Philadelphia promoters. The new company produced about 59,000 ounces of silver and quantities of copper, lead, iron, and antimony from the Enterprise Mine and the Monte Cristo mill in 1867.[7] During the summer of 1867, however, Leathers, one of the original prospectors in the district, was shown an outcropping of silver ore on Treasure Hill in the White Pine Range by an Indian named Napias-Jim. Before winter sent in, he, his partners, and others filed claims, and news of the discovery began

---

5. Merrifield, "Nevada, 1859-1881," pp. 18-19; Douglas C. McMurtrie, comp., *Nevada Mining Laws: The Text of the Local Laws and Regulations Enacted By Four Local Mining Districts in Nevada, 1863* (Chicago, The Black Cat Press, 1935), pp. 7-31; and Russell Richard Elliott, "The Early History of White Pine County, Nevada: 1865-1887" (Unpublished M.A. thesis, University of Washington, 1938), pp. 47-53.

6. W. Turrentine Jackson, *Treasure Hill: Portrait of a Silver Mining Camp* (Tucson, University of Arizona Press, 1963), pp. 5-6. A copy of the laws of the White Pine Mining District, dated October 10, 1865, may be seen in Appendix I. The laws were amended on July 20, 1867. A copy of the amended laws may also be seen in the aforementioned appendix.

7. Russell Richard Elliott, "The Early History of White Pine County, Nevada: 1865-1887," *Pacific Northwest Quarterly*, XXX (1939), 149-50.

to spread. With the arrival of spring in 1868 there was a stampede of prospectors into the area, a frenzied staking of claims, and the beginnings of a large-scale mining rush.[8]

The principal reason for the White Pine mining rush was the richness of the ore. What had been discovered was a large deposit of high grade silver ore, the result of supergene enrichment which had concentrated the silver in a relatively shallow surface deposit. The ore was generally silver chloride, and some samples assayed at thousands of dollars per ton while others were almost in the form of metallic silver or silver dust. The richness of the deposit captured the imagination of the western mining industry, and, by the summer of 1868, interest in the new district was at a high pitch. The result was a large-scale, intense mining rush into the area, involving not only prospectors and miners but also merchants, mill operators, and professional men. The rush was especially active in 1869, as new transportation services to Treasure Hill were organized.[9]

The impact of the discovery on Treasure Hill can be found in various contemporary accounts. On December 14, 1868, for instance, one miner wrote:

> White Pine is undoubtedly one of the, if not the richest and most extensive mining localities discovered since California. The mines are not confined to one locality but extend over a scope of country some fifty by one hundred miles, and the new developments have turned out equally as rich as the first discovery. Two men doing business . . . have just returned from there who went out for the purpose of procuring places for business say that there is no question about the richness and extent of the mines. Only the one that pays from three to five hundred is worked in the mills the richer one requires to be smelted – two hundred dollars ore is too poor to be worked at the present time. Now I should like to go out there this winter and intend to if I can raise the means for I think it is the best opening for making money that has occurred on this coast for a good many years either in mining, locating town property or business.[10]

One of the best descriptions of the White Pine mining rush was given by Albert S. Evans in the March 1869 issue of *Overland Monthly.* He observed:

> Across the wide, treeless Mirage Valley, over the low Pancake Mountain, across another and narrower valley, and we enter at last the long winding cañon which leads up into the White Pine Mountain Range and terminates at Hamilton. . . . Long lines of mules and oxen, drawing heavy wagons, laden with supplies of every kind – mill machinery, whiskey, provisions, whiskey, hardware, whiskey, mule feed, and whiskey again – "jerk-water" stages, which had been three or four days making the trip of one hundred and ten miles from Hamilton with passengers for the mines; mine owners, or those who had but recently sold mines, and were flush, on horseback; bull-whackers, in soldiers' coats, with whips a dozen feet in length on poles longer still, just in from Austin or Wadsworth; honest miners, with salted claims, ready to sell to the newly-arrived greenhorns; footpackers, without a cent, who had packed their blankets and

---

8. Newspaper articles detailing the White Pine rush include those in the *Sacramento Daily Union*, July 1, 24, and 29, 1868, and the *Daily Alta California*, February 12, March 27, April 21, 28, and May 9, 1869.

9. Bourne, "Early Mining in Southwestern Utah and Southeastern Nevada," pp. 86-88, and Rodman Wilson Paul, *Mining Frontiers of the Far West, 1848-1880* (Albuquerque, University of New Mexico Press, 1963), pp. 106-08.

10. John Curtis to [William H.] Taylor, December 14, 1868, Mitchell Papers, 1858-1887, Manuscript Department, Huntington Library, San Marino, California.

luggage all the way from Elko . . . painted Jezebels from every mining camp from Idaho to Sonora; Shoshone Indians, Chinamen, and "capitalists," who in San Francisco were never known as men with plethoric bank account, excitement, and confusion. The stores and saloons were crowded with men in huge overcoats, the pockets of which were filled with big specimens, small silver bars, and rolls of location notices and assay certificates, buying, selling, and talking mines, and "bummers" of the seediest class, who drank at the expense of every stranger who approached the bar – swore, talked, fought, and "swapped" filthy lies from morning to night. In the evening the streets were deserted, but the mad excitement indoors was as great as ever. The bar-tenders were kept in incessant motion in their frantic efforts to supply the demand for drinks which poured in from every direction. . . . The dance-house was filled with half or wholly tipsy miners, with a sprinkling of abandoned women, whose smiles and favors were as eagerly sought for and as jealously observed by the unfavored as were ever those of the most gifted and virtuous of their sex in the abode of wealth and refinement, at the East, on a gala night.

In the rear of every bar-room was a door bearing a sign inscribed "Club Room," through which was heard the strains of discordant music and the chinking of coin.[11]

Henry Eno, who went to the Treasure Hill mining camp of Hamilton during the summer of 1869, wrote glowing accounts of the frenzied activity and extravagance associated with the White Pine mining rush. In March, just before leaving Carson City, he wrote to a relative:

I have seen many persons from there [White Pine] & they all unite in saying that it is almost fabulously rich in Silver ore & much of it worth from two to fifteen thousand dollars per ton. Over two millions of dollars worth of bullion have been shipped from there within the last three months. . . . The fact is half the people here are more than half crazy & perhaps you will think I am for the White Pine fever will take me off in six weeks time. . . . From present indications I believe there will be twenty five or thirty thousand people in the vicinity of White Pine this coming season. Of those some few will make fortunes & many, very many, make failures.[12]

After arriving in Hamilton in July, Eno, wrote:

My first impressions are that this is the richest silver mining district discovered since Columbus discovered America. . . . This is the very paradise for speculators & adventurers, men who have some money & some sagacity.[13]

Later that summer Eno wrote:

I am camped at an elevation of eight thousand feet above sea level. Hamilton where I am now writing contains about 2000 Inhabitants Treasure city a thousand feet higher has perhaps 1500. Shermantown about as many. Then there is Eberhart City, Swansey & I believe two or three others. Take Treasure

---

11. Albert S. Evans, "Up in the Po-go-nip," *Overland Monthly*, II (March 1869), 273-74.

12. Henry Eno to William Eno, March 2, 1869, printed in W. Turrentine Jackson, ed., *Twenty Years On The Pacific Slope: Letters of Henry Eno from California and Nevada, 1848-1871* (New Haven and London, Yale University Press, 1965), pp. 176-78.

13. Ibid., June [July] 14, 1869, printed in Jackson, ed., *Twenty Years On The Pacific Slope*, pp. 180-81.

City for the center there are perhaps 8000 within three miles of it. I believe almost as many more in the various mining districts within fifty miles. There are about a dozen quartz mills within four or five miles, now running 155 Stamps each stamp can crush one ton of ore a day it is impossible to say what is the average yield of Silver to the ton. I put it at $50 to the ton but many think more. Many tons yield from $1000 to even $10000 per ton. There is much of what is called base or refractory ore here which cannot be successfully worked without roasting in a furnace or smelting, and several smelting works are being put up & I predict that in a few years there will be hundreds of smelting works established Many very many handsome fortunes have been made here the last year & many have lost. The principal fortunes have been made by those who had money to start with. It is a Homopathic principle that like cures like & here the like begets like. But still there are a good many instances where poor laboring men have made what they call a lucky strike.[14]

Perhaps, one of the most comprehensive and balanced descriptions of the White Pine mining rush is found in *Statistics of Mines and Mining in the States and Territories West of the Rocky Mountains* by U.S. Commissioner of Mining Statistics Rossiter W. Raymond in 1870. He observed:

> Mining excitements, or "rushes" to newly-discovered localities, where rich deposits are reported, have been too often and well described to need further elaboration now. It is sufficient to know that the White Pine fever was one of the most violent of these extraordinary epidemics ever experienced on the Pacific coast. Like many others of its class, it was the fiercer and blinder the farther one went from its cause . . . and although large numbers of prospectors hastened to the new "diggings," it was with little hope or expectation that White Pine would prove anything more or better than Reveille or Hot Creek. It is, however, a matter of routine in a prospector's life to go to every new place that is discovered; and if he gains nothing by it, he consoles himself by the reflection that at least his education has been advanced to the extent of knowing that there is nothing there. The unfortunate result of previous enterprises in districts where rich ore had been found near the surface in limestone country rock added to this chronic distrust, and several months elapsed before much confidence was felt in the permanence of these rich deposits, bearing so striking and ominous a resemblance to other discoveries, which had once promised much and "petered" early. It was not until Nevada discovered that San Francisco had also discovered White Pine, and that California capitalists were eagerly investing money there, that the excitement grew feverish, and prospectors from every part of the State rushed to the district which had already acquired the *soubriquet* of the "poor man's paradise." Other and older districts were soon almost depopulated; mines and mills were forced to stop for want of laborers; and although the price of labor was not materially affected, it was only because both employers and workmen tacitly understood that wages were already too high to make mining generally profitable.[15]

By the summer of 1869, the White Pine mining district had ten stamp mills in operation, and by the fall there were fifteen with six more under construction. At one time there were twenty-three mills running simultaneously, the largest being the Stanford at Eberhardt with thirty stamps. During 1869 the yield of thirty-four mines was $1,822,868 according to tax

---

14. Ibid, August 8, 1869, printed in Jackson, ed., *Twenty Years On The Pacific Slope*, pp. 182-84.

15. Rossiter W. Raymond, *Statistics of Mines and Mining in the States and Territories West of the Rocky Mountains* (Washington, Government Printing Office, 1870), p. 117.

records, while nearly 200 mines were producing profitable ore and more than 13,000 claims had been staked.[16] Later on March 28, 1874, the *White Pine News* would describe the frenzy during this period of county history:

> White Pine, at its birth, six years since, was a prodigy. The chloride ores of the Hidden Treasure and the Eberhardt were unknown to the North American continent, and had a parallel only in the Chañarcillo and kindred Chillian mines. Their richness running into the thousands, and their docility extending nearly to assay value, excited the greed or interest of all within hearing. These, together with the misapprehension of their extent, caused by the profuse exhibition on Chloride and Bromide Flats, inflamed the public to a degree unknown since the birth of California. Electrified by the prospect of interminable wealth, multitudes took their line of march for the new Mecca, and so great was the hegira, that, indifferent to sickness or climate, within the first season some 10,000 or 12,000 men had established themselves in huts and caves 9,000 feet above the sea. All locomotives were in requisition, from Shank's mare to the dashing coach, and teams groaned under the burden of subsistence for the pilgrim army. In the midst of the small-pox, with the thermometer at zero, a carnival of riot and speculation was inaugurated. Mines, land, wood and water were claimed; towns were built; lots rose to the thousands; and mining claims, good, bad or indifferent, were bought and sold at unconscionable prices.[17]

The White Pine mining rush led to an orgy of speculation that, according to Nevada historian Russell R. Elliott, "far exceeded any other in Nevada history." Between February and April of 1869, capitalization of White Pine companies incorporated in California jumped from $62,000,000 to $246,884,000, the latter representing some 170 firms. Both sums were far beyond the real wealth of the mines. Actual working capital moved more slowly into the new district, and, as early as 1870, California capitalists were becoming disillusioned about the quality of the ore body. British capitalists, however, soon moved in to take their place. The entrance of British capital into Nevada mining was part of a major flow of investments from Great Britain to the United States in the post-Civil War era. It was British capital which kept the White Pine Mining District alive into the early 1890s, long after it was apparent that the rich ore was not to be found at depth.[18]

Although 1870 is the year for which the official records show the largest production for the district ($2,137,801), the easily found ores were nearly exhausted by that spring. Production quickly tapered off during the 1870s with production in 1876 reaching only $38,268. By 1872 the White Pine mines had produced nearly $7,000,000, but from that time until 1890 mine production amounted to less than $6,000,000.[19]

Perhaps, the final word about the White Pine mining rush should come from the great naturalist John Muir, who visited the area in the late 1870s and described its great waste. He observed with some disdain:

---

16. "Mining Summary," *Engineering and Mining Journal*, IX (March 8, 1870), 148-49, and Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 83. Further data on the White Pine mining rush may be found in Jackson, *Treasure Hill*, pp. 12-33, and Nevada Bureau of Mines, Bulletin 57, *Geology of the White Pine Mining District, White Pine County, Nevada*, by Fred L. Humphrey (Reno, University of Nevada, 1960).

17. *White Pine News*, March 28, 1874.

18. Elliott, *History of Nevada*, p. 104.

19. Elliott, "Early History of White Pine County," M.A. thesis, pp. 45-46.

> Many of [the mines] do not represent any good accomplishment and have no right to be. They are monuments of fraud and ignorance – sins against science. The drifts and tunnels in the rocks may be regarded as the prayers of the prospectors offered for the wealth he so earnestly craves; but like prayers of any kind not in harmony with nature, they are unanswered.[20]

Despite the brevity of the White Pine mining rush, it had several important effects on the future mining development in eastern Nevada. First, it focused the attention of the western mining industry on eastern Nevada. Second, following the initial rush, a "backlash" effect developed when new arrivals came to White Pine and found that the good ground had been claimed and the area was overcrowded. As a result, the "prospecting mania" spread throughout eastern Nevada and many new mining districts were established. Third, the rush created an enlarged population center in eastern Nevada, composed of wholesale and retail merchants, freight and stage line operators, ranchers and settlers, and laborers, as well as a source of mining equipment and supplies much closer than either western Nevada or Salt Lake City. Expanding mining activities could thus be conducted on a more profitable basis in the previously accessible and isolated stretches of eastern Nevada.[21]

The spread of the "prospecting mania" engendered by the White Pine mining rush was described in numerous contemporary accounts. On May 25, 1869, the *Daily White Pine News* reported on this phenomenon:

> The mountains are full of prospectors, in all directions, and scarcely a day passes that we are not called on to announce some valuable discovery. It is now a well-established fact that ore exists in paying quantities throughout almost every part of the vast mineral belt which stretches away south from the railroad to and beyond the Colorado river. Outsiders, who are envious of our prosperity, may set up their puny whine about White Pine being a humbug; in-door prospectors and "private" letter writers may say that there is nothing in the country but spar and limestone, but for our part we would rather take our chances along this great mineral belt than in any other portion of the world. The eyes of the civilized world are turned toward the silver mines of Nevada, and the "Great East" must necessarily furnish the field for future operations. Who can estimate the population and wealth of Eastern Nevada ten years hence?[22]

The spread of the White Pine mania was described further by Gibbes and Evans in their *Map of the White Pine Silver District, Nevada, With the Surrounding Country. . . . With A Description From the "Alta California"* in 1869. They noted:

> All through the White Pine District new discoveries, of greater or less importance, are being made daily, and at Duckwater, forty miles southeast; at the new Sierra District, sixty-five miles south; at Eureka, forty miles west – all around, in fact, new discoveries are being made. Stretching from the northern line of Idaho to the Nevada line on the south, is a broad belt of metalliferous

---

20. Quoted in Elliott, *History of Nevada*, p. 105.

21. Bourne, "Early Mining in Southwestern Utah and Southeastern Nevada," pp. 88-89.

22. *Daily White Pine News*, May 25, 1869.

country as yet but partially explored or wholly untouched. All this will be hunted over next year by prospectors stimulated by the White Pine discoveries.[23]

The widening ripple effect of the White Pine mining rush was also described in a letter written by E.L. Davis, Nevada Surveyor-General, to James L. Wilson, Commissioner of the General Land Office, on August 10, 1869. Davis observed:

> The fame of White Pine grew rapidly under the increased facilities of the railroad. Prospectors spread over the county adjacent and remote, and within a brief period no less than 15 mineral districts were discovered and organized. These districts extend 250 miles south of the Central Pacific Railroad into Utah Territory on the east, and to the line of Idaho on the north. In all these various mining districts nearly every acre of timber grew. Agricultural and saline lands situated in the mountain ranges or the subjacent valleys is claimed and held by possessory title. What preparation of the mining property situated in the numerous districts in the State will prove valuable remains to be demonstrated.
>
> The Central Pacific Railroad which was completed in May last, will be of incalculable importance in promoting the best interests of the State. In its course of upwards of 450 miles through or bordering upon extensive mineral regions and agricultural tracts it has imported energy and life where before was languor and solitude. Already its line is dotted with towns and settlements. It is generally believed that this grand advance will be the means of rendering the business of mining profitable in the central and eastern parts of the State.[24]

The effects of the White Pine mining rush "backlash" were felt throughout eastern Nevada. During the early 1870s there would be flurries of activity in nearly forty mining districts throughout the area. The "backlash" was accelerated by the rapid decline of production in the White Pine district during these years. To the east and southeast of Treasure Hill new districts would be established in the Snake Range in the area of present-day Great Basin National Park.[25]

The historical development of the White Pine Mining District set the pattern for the other districts in the county. While each district had its own distinctive history, each one had a similar story. After the ore discovery, a district would be established, a town or camp would be built, and mines and mills would spring up in the center of activity. As soon as the mines were exhausted, the people would disappear, leaving ruins, deserted mines and camps, and deteriorated mining equipment and related debris.[26]

---

23. *Map of the White Pine Silver District, Nevada, With the Surrounding Country, By Chas. Drayton Gibbes, With A Description From the "Alta California," By Albert S. Evans* (San Francisco, Warren Holt, 1869), pp. 15-16.

24. E.L. Davis, Surveyor-General Nevada, to James L. Wilson, Commissioner, General Land Office, August 10, 1869, Nevada Office of the Surveyor General, Reno, Copies of Letters Sent ("Letter Book 'A'"), 1861-1869, Box 1, Series 1, Record Group 49, Records of the Bureau of Land Management, National Archives and Records Administration, San Francisco Branch, San Bruno, California.

25. Bourne, "Early Mining in Southwestern Utah and Southeastern Nevada," pp. 89-92; "Nevada," *Annual Mining Review and Stock Ledger*, July 1876, 20; and John J. Powell, *Nevada: The Land of Silver* (San Francisco, Bacon & Company, 1876), pp. 140-41.

26. Elliott, "Early History of White Pine County," *Pacific Northwest Quarterly*, 157.

SNAKE (BONITA) MINING DISTRICT

Location

The Snake or Bonita Mining District includes the drainage areas of Snake and Baker creeks on the east slope of the Snake Range. The exact location of the original Snake, or Snake Mountain, district established in 1869 is not known, but the Snake Valley district established in 1873 was "on the eastern slope of Jeff Davis Mountain, the eastern boundary of the district being the State line." The area was renamed the Bonita district just before to World War I for Camp Bonita on Snake Creek.[27]

History

The earliest discoveries in the area were specimens of silver ore in February 1869 at which time the Snake or Snake Mountain Mining District was organized. Early records of the district all attest to little mining activity. On April 30, 1869, the *Daily White Pine News* reported that Judge Robardson had just returned to Treasure City from an extensive prospecting tour of eastern Nevada, including the Snake district. While pleased with much of the rock shown him from the district, the judge could not "speak advisedly as to the extent and permanency of any of the mines, as a sufficient amount of labor" had "not yet been expended to enable any one to form a reliable opinion touching this subject."[28] Later on Christmas Day that year the newspaper observed that the Snake district "has been but little prospected." The ore was found to be "low grade and in slate formation."[29] In his report for 1869 and 1870 the Nevada state mineralogist made the following observations about the district:

> It is twelve miles east from Sacramento District on the eastern slope of the mountain. The country rock is granite. Specimens of ore have been found which assay finely, but there is not sufficient encouragement to justify the expenditure of much capital or labor in development.[30]

In his *Statistics of Mines and Mining in the States and Territories West of the Rocky Mountains*, U.S. Commissioner of Mining Statistics Rossiter W. Raymond wrote in 1870:

> The district [Snake Mountain] is well wooded and watered. The mines carry rich sulphurets of silver and are distant sixty-five miles from Fillmore City, Utah, where provisions can be bought cheap.[31]

Despite the promising prospects of the district, little mining activity was undertaken for some forty years. In 1873 a few locations were made and the Snake Mountain Mining District was organized, but there is no record of production. The following year the Nevada state

---

27. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 77, and Francis Church Lincoln, *Mining Districts and Mineral Resources of Nevada* (Reno, Nevada Newsletter Publishing Company, 1923), p. 255.

28. *Daily White Pine News*, April 30, 1869.

29. Ibid., December 25, 1869.

30. *Report of the Mineralogist of the State of Nevada For the Years 1869 and 1870* (Carson City, Charles L. Perkins, State Printer, 1871), p. 84.

31. Raymond, *Statistics of Mines and Mining in the States and Territories West of the Rocky Mountains, 1870*, p. 180.

mineralogist reported that the district was "either abandoned" or had insufficient activity "worthy of mention."[32]

Despite the relative inactivity of mining in the Snake district during the period from 1874 to 1912 lone prospectors periodically entered the area in search of mineral wealth. One such individual was Peter Dieshman who built a cabin in upper Baker Creek Canyon about one mile below the lake around the turn of the century. He reportedly spent many years in the area prospecting, but little is known about his background or activities.[33]

Another prospector to enter the Snake Mining District during the early 1900s was Alfred Johnson. On October 29, 1909, he filed an application for a water rights permit in Snake Creek Canyon for mining and power purposes. The application, however, was protested by George W. Gonder, an area rancher at Garrison, on December 1, 1909, and the matter became embroiled in litigation for an extended period.[34] In later years Johnson would develop the tungsten mine above Johnson Lake at the head of Snake Creek Canyon.

Little mining activity occurred in the Snake district until 1912. That year scheelite-bearing veins along Snake Creek were discovered by John D. Tilford, and operations were commenced by Tilford and others. The Tilford or Bonita Mine and nearby Camp Bonita were soon established and the district became known as Bonita. By December 1912 the *Mining and Scientific Press* reported:

> At the claims of J.D. Tilford and others on Snake Creek, near Baker . . . about 50 tons of tungsten ore is on the dump, worth from 15 to 60% tungstic acid. A 42-in. vein has been opened in two shafts and an adit. The ore will be hand sorted to bring the average to 40%, which will return $4 per unit at Newhouse, Utah. In the spring a small mill with concentrating tables may be built.[35]

Active operation of the Bonita Mine was continued in 1913 as there was a growing need for tungsten in the manufacture of munitions and as an alloy of steel. In March Tilford reported that the vein had been prospected for 800 feet. The ore vein was up to three feet in width and averaged 25 percent tungstic acid. The first shipments from the mine would be made that spring.[36]

Several months later in July Tilford arranged for installation of an "experimental" 2-stamp mill, having a capacity of two tons each 24 hours, with concentrating tables along Snake

---

32. *Biennial Report of the State Mineralogist of the State of Nevada For the Years 1873 and 1874*, p. 89, in Appendix to Journals of Senate and Assembly, State of Nevada, 7th Session, and Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 77.

33. Waite, "Proposed Great Basin National Park" Part II, pp. 635-36.

34. *Biennial Report of the State Engineer, 1909-1910*, pp. 67, 79, in Appendix to Journals of Senate and Assembly, State of Nevada, 1911, 25th Session, Vol. 2.

35. "General Mining News – Nevada – White Pine County," *Mining and Scientific Press*, CV (December 21, 1912), 810.

36. "General Mining News – Nevada – White Pine County," *Mining and Scientific Press*, CVI (March 1, 1913), 358.

Creek. At the time it was noted that ore on the dumps at the Bonita Mine "should produce two carloads of concentrate."[37]

Little work was done at the Bonita Mine in 1914, but the rising price of tungsten as a result of World War I demands led to increasing activity in 1915 and 1916. During the summer of 1915 Tilford bonded and leased his property to Atkins, Kroll & Co., a San Francisco firm that erected a 20-ton mill and "worked it until the water for steam and milling operations froze." In March 1916 the firm relinquished its bond and lease, "owing to disagreements and the meddling of the owner." By August it was reported that the Tilford brothers were "running their two-stamp mill" on Snake Creek and selling their product to the United States Tungsten Corporation works at the Hub Mine on the west side of the Snake Range. The following month mining reports indicated that the Bonita group was "producing scheelite," the mill was "working steadily," and prospecting was "active." Some ore from the Richardson and Poppish mines some miles away was being processed at the mill.[38]

Little activity occurred at the Bonita Mine between 1916 and the early 1940s, when World War II demands led to rising prices for tungsten and scheelite. During the early 1940s the floor of Snake Creek Canyon in the vicinity of the Bonita Mine was explored for "placer scheelite." Forty-four pits and shafts as deep as 25 feet were sunk to water level in the alluvium without encountering bedrock. An area 1,200 feet long and 200 to 400 feet wide was examined and yielded samples averaging 2.8 pounds tungstic trioxide per ton. About five units of scheelite were recovered from 110 yards of treated gravel, the scheelite ranging in size from ten mesh to nuggets weighing ten pounds.[39]

Beside the Bonita Mine there were other tungsten deposits higher up Snake Creek that first became productive in 1916. Two years later the Uvada Tungsten Company began operating the Pilot Knob group of claims and a 20-stamp mill at the head of Snake Creek. This group and mill probably constituted the early workings of what has become known as the Johnson Mine and Mill near Johnson Lake.[40]

The Johnson tungsten mine above Johnson Lake, several hundred feet below the crest of the Snake Range, was worked sporadically on a small scale for many years. In August 1920, for instance, the *Engineering and Mining Journal* reported that a 1,200-foot tunnel had "been driven on the lead-silver property of Dearden & Johnson near the head of Snake Creek." The vein was reportedly eighteen inches wide and said "to carry high values." The ore was milled in a two-ton gravity concentration plant in the canyon about one mile below Johnson Lake. Because of the rugged terrain the ore from the mine was transported in large drums via an overhead cable to the shore of Johnson Lake from which it was

---

37. "General Mining News – Nevada – White Pine County," *Mining and Scientific Press*, CVII (July 26, 1913), 163, and U.S. Geological Survey, *Mineral Resources of the United States, Calendar Year 1913, Part I – Metals* (Washington, Government Printing Office, 1914), p. 356.

38. "Tungsten in 1915," *Mining and Scientific Press*, CXII (January 29, 1916), 188; "The Mining Summary-Nevada-White Pine County," *Mining and Scientific Press*, CXII (January 29, 1916), 183; "Review of Mining-Ely, Nevada," *Mining and Scientific Press*, CXII (April 1, 1916), 485; "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXIII (August 12, 1916), 253; and "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXIII (September 23, 1916), 475.

39. U.S. Bureau of Mines, "Mineral Investigation of the Wheeler Peak Roadless Area, White Pine County, Nevada," MLA 56-83, by Steven E. Kluender, 1983, p. 10, and Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 77.

40. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 77.

taken to the mill by mule. The concentrates were then shipped to Frisco, Utah, for export by rail.[41]

Little documentation concerning mining activity at the Johnson Mine could be found after 1920. In 1935, however, it was reported that J.S. Dearden of Baker "shipped a small quantity of scheelite" from the east side of the Snake Mountains. This activity was centered in the aforementioned Johnson Mine. Some time thereafter a major snowslide at Johnson Lake reportedly caused severe damage to the mining operation, thus shutting it down.[42]

During 1958 the U.S. Bureau of Mines surveyed the inactive Johnson Mine. The bureau's mining engineers observed:

> Johnson Lake Tungsten mine located in projected sec. 35, T. 13 N., R. 68 E. at the head of Snake Creek is developed by two short drifts and surface cuts. . . . Veins at the Johnson Lake area are small, difficult to work and are of little mineral value.[43]

Meanwhile, some minor mining activity was occurring in Young Canyon. In 1929, for instance, lead ore was shipped from the Poljack claim. Seven tons of ore yielded 6,119 pounds of lead, 148 pounds of copper, and 73 ounces of silver, valued at $450.[44]

Ten years later, in September 1939, Peter Bremer located the Jack Pot Claim in Young Canyon. He performed a small amount of work in prospecting for gold. After his death the ground was relocated in July 1958 by a Mr. Poljack, who conducted assessment work. Later in 1963 the U.S. Bureau of Mines found that the Poljack property consisted of two unpatented claims, known as the Wolframite No. 1 and No. 2, with development openings comprising "a shallow adit 25 feet in length and a 20 foot cut" which were "500 feet apart."[45]

Figures for total production from the Snake Mining District are not available.

---

41. "News By Mining Districts – Nevada – Snake Range," *Engineering and Mining Journal*, CX (August 21, 1920), 381. Also see Waite, "Proposed Great Basin National Park," Part II, p. 668.

42. U.S. Bureau of Mines, *Minerals Yearbook, 1935* (Washington, Government Printing Office, 1935), p. 495, and Michael R. Kelsey, *Hiking and Climbing in the Great Basin National Park* (Provo, Kelsey Publishing, 1988), pp. 78-81.

43. "Report on the Investigations of Mineralization In and Adjacent to the Humboldt National Forest, Mt. Wheeler Area, White Pine County, Nevada," by Henry W. Jones, Mining Engineer, Bureau of Mines, November 5, 1958, pp. 4, 6-8, in U.S. Department of the Interior, National Park Service, Region Four, "Field Investigation Report, Lehman Caves – Wheeler Peak, October 13 to 17, 1958, October 29 to November 13, 1958, Portion of Southern Section of Snake Range, White Pine County, Nevada," February 1959. The investigation found all mines in the Snake district to be inactive.

44. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 77, and U.S. Geological Survey, *Mineral Resources of the United States, 1929*, Part I – Metals, (Washington, Government Printing Office, 1932), p. 673.

45. "Poljack," USBM Unpublished Data, 1963, File No. 341, Tungsten Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

SHOSHONE (MINERVA, LEXINGTON, TUNGSTEN) MINING DISTRICT

Location

The Shoshone Mining District, on the west slope of the Snake Range, is better known in recent years as the Minerva district, but it has also been referred to as the Tungsten district. During the early mining period the eastern portion of the district was organized as the Lexington district. It includes T. 11 N., R. 68 E., and extends from the site of the old Shoshone post office in the northwest corner to Silver Chief Canyon near the south side.[46]

History

Silver chloride was identified in the Indian vein on a low spur of Mineral Hill on March 13, 1869, when an Indian led some miners to the outcrop of what is now the eastern part of the Scheelite Chief Mine. Ten claims were staked that day, and the Shoshone district was organized. On April 30, 1869, the *Daily White Pine News* reported that Judge Robardson had just returned to Treasure City after an extensive prospecting tour of eastern Nevada including the Shoshone district. While the judge was impressed with much of the rock shown him from the district, he could not "speak advisedly as to the extent and permanency of any of the mines, as a sufficient amount of labor" had "not yet been expended to enable any one to form a reliable opinion touching this subject.[47]

The Nevada state mineralogist reported at length on the Shoshone district in 1870. He stated:

> This district joins Lincoln on the south and has all the same natural facilities for mining. The mines . . . are situated on a low spur of the mountain called Mineral Hill. Another spur further north called Lookout Mountain has a number of mines. East of these hills is a cañon, at the head of which a saddle connects the hills with the main mountain. This saddle rises into another ridge known as the Hotchkiss Hill. North of this there is a wide cañon in which a village is surveyed. North of this cañon there is a bench or level place on the top of a hill known as Bromide Flat, where there are mines. Nearly the whole space described is covered with nut pine and mountain mahogany. To the east, the mountain rises very high, probably ten thousand feet, and is capped with limestone.

The report elaborated on the work in the district:

> Located March 13th, 1869; width, three and half feet; dip, north 30: course east. An incline follows the vein to the depth of twenty-two feet; near the bottom of the incline the vein is broken; the country rock is limestone; the ore is a chloride of silver, and selected, assays from $62 to $247 per ton.
>
> The Quandary and White Cloud, located March 13th, 1869. The former is two hundred feet south of the Indian and producing the same quality of ore. Its course is northeast; width five feet. The White Cloud is a thousand feet north

---

46. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 76, and Church, *Mining Districts and Mineral Resources of Nevada*, pp. 254-55.

47. *Daily White Pine News*, April 30, 1869.

of the Indian; it is about eight feet wide; course, east; dip, north 30°; the ore selected assays $223 per ton and shows some gold; the north wall is smooth.

The Treasure, on Last Chance Hill east of Mineral Hill, located March 13th, 1869; one thousand feet claimed; vein matter five feet wide and crops through a distance of five hundred feet.

There are several other claims of a similar character in Last Chance Hill. The Plutarch, Grasshopper, Plinney – all located March 16th and 17th, 1869, on Hotchkiss Hill. Course east; the width is undetermined. The vein matter is extensive. The ore assays selected $125 per ton. The Country rock is limestone. The Yellow Jacket, North America, Rainy Day, Archey, Ike Cook, South America, and other claims, located in March and April on Bromide Flat, have the same general character. The course is northeast; width of vein matter five feet. Country rock, limestone. The ore yields from $97 to $204 per ton, when properly selected.

A great many claims are located, but little work has been done. The ore is found in bunches and seams. It is a rich chloride. Its extent can only be determined by developments.[48]

Despite the promising prospects of the district, work had largely come to a halt by 1873-74. The *Engineering and Mining Journal* reported in January 1874 that the "old district of Shoshone" was "in a great measure dead" but promised "to revive at some future time." That same year the state mineralogist observed that the mines in the Lexington district, which had been carved out of the eastern part of the Shoshone district, were either abandoned or had insufficient work being done in them to be "worthy of mention."[49]

About the time that these reports were being published, however, there was renewed activity in the Shoshone district. In January 1874, for instance, the *Mining and Scientific Press* printed an article from the *White Pine News* describing a recent discovery on the Indian Queen claim. The article stated:

The general appearance of the ore is very encouraging, being sulphurets of silver contained in pure quartz, and will assay into the thousands. The ledge is represented as extending a distance of a mile and a half, showing rich cropping all the way. An incline has been sunk at one point to the depth of forty-five feet, all the way in ore. Shoshone district was discovered some years ago and many locations made there, but its great distance from communication has rendered its development slow, consequently leaving it, like many other valuable properties, almost unknown. Now by means of Travis & Co.'s stage line to Pioche, the distance to the mines has been very materially shortened, as, leaving the stage road at Patterson's, one hundred miles south from here, only twenty-five miles has to be accomplished to the locality, which can easily be done on horseback.

The *White Pine News* item went on to say:

---

48. *Report of the Mineralogist of the State of Nevada For the Years 1869 and 1870*, pp. 96-97. Also see *White Pine News*, March 25, 1870.

49. "Mining in Nevada during 1873," *Engineering and Mining Journal*, XVII (January 24, 1874), 57-58, and *Biennial Report of the State Mineralogist of the State of Nevada For the Years 1873 and 1874*, p. 89, in Appendix to Journals of Senate and Assembly, State of Nevada, 7th Session.

> We are glad to note a renewal of interest in this section of country, as, should active operations be commenced there, other and more important mining interests will be opened to capitalists in the immediate vicinity. . . . Undoubtedly a rich country lies south of us which only needs the necessary adjuncts of wealth and labor to open them to speculators.[50]

Mining activity in the Shoshone district, however, quickly declined. A Salt Lake City company purchased "a number of the principal locations and made some developments afterwards," but no "profitable results" were obtained. While the Indian Queen "showed some good ore," there was an insufficient "amount found to warrant any great expense in extracting the same."[51]

Mining activity in the Shoshone district lay dormant until 1885 with the exception of minor location and assessment work.[52] On September 12, 1885, the *White Pine News* reported that the district, which had become known as Minerva,

> bids fair in the near future to become the most important bullion producing district in the county. The ledges are numerous and large: some of them being 15 to 25 feet wide, and traceable on the surface for the full length of the claims (1500 feet), and the ore is generally of a high grade. The Mammoth ledge, owned by Mooney & Hudson, has a shaft down to a depth of 45 feet, and from the surface to the bottom of the shaft there is a continuous body of ore, 5 feet wide, that gives average assays of 80 ounces per ton of silver. The Blue Belle, owned by the same gentlemen, carries the same character of ore and in large quantities. Both wood and water are abundant in the district.[53]

After several years of little mining activity the district, which was again referred to as Shoshone, revived in 1890. In that year the Nevada Surveyor-General described the new work at Shoshone:

> This little camp, situated about twenty miles south of Osceola, White Pine county, in the Snake range of mountains, has a number of silver-bearing ledges that will, it is predicted, soon astonish even the old timers by their product. From a few samples of rock thrown out during the last assessment work several assays were made showing from 200 to 300 ounces in silver to the ton. There is a plentiful supply of work and water convenient, sufficient for all mining purposes of the district. A small force of men are now at work, taking out ore to ship to Salt Lake City for reduction.[54]

---

50. "Shoshone District," *Mining and Scientific Press*, XXVIII (January 10, 1874), 27.

51. *Biennial Report of the State Mineralogist of the State of Nevada For the Years 1875 and 1876*, p. 171, in Appendix to Journals of Senate and Assembly, State of Nevada, 8th Session, Vol. I.

52. See, for instance, "Notice of Locations in Shoshone Mining District for 1882" in a volume entitled, "Shoshone Mining District, Filed Aug. 5th, 1882," at the Nevada Historical Society, Reno.

53. *White Pine News*, September 12, 1885.

54. *Report of the Surveyor-General and State Land Register of the State of Nevada For the Years 1889 and 1890*, p. 165, in Appendix to Journals of Senate and Assembly, State of Nevada, 1891, 15th Session. The Shoshone post office was established on May 8, 1896, at the Swallow Ranch. Helen S. Carlson, *Nevada Place Names* (Reno, University of Nevada Press, 1974), p. 214.

With the exception of minor assessment and examination work little mining activity occurred in the district, which again became known as Minerva by the early 1900s, between 1890 and 1915. In December 1901 the *White Pine News* reported that James H. Marriott and Orson Hudson were conducting assessment work in the district. Several years later, in April 1905, J. Kelly was reported to be examining property in the district, and in April 1907 Jasper M. Fox and Clayton Fox were working in the area with "good showings."[55]

Scheelite was discovered in quartz veins in the district during late 1915 by C.T. and A.G. Millick and Jasper M. Fox.[56] On April 1, 1916, the *Mining and Scientific Press* reported:

> In the old Minerva district, 30 years ago work was done on several low-grade silver veins, which were abandoned. This was located late last fall by rancher Hudson as a silver property. Millick brothers and Jappy Fox found scheelite in the dumps, and a 5 to 6 ft. vein was opened in several places, containing 1% scheelite, with bunches of high-grade ore. They jumped Hudson's location, claiming that it was not properly staked, later agreeing to pay him $10,000 when sold. W. Stewart recently sold the property to Salt Lake City and Boston people. A payment of $3000 cash was made (which is 1% of the total price) over a period of 5 years, with a 20% royalty applying to the purchase price. These people say that they will install a mill in the near future. In four days two of the Millick brothers recently panned 265 lb. of concentrate from old dumps that assay 60%, worth about $600.[57]

Further efforts were conducted to develop the extensive tungsten deposits of the Minerva district in 1916. The Nevada Scheelite Company was incorporated in Salt Lake City that spring to develop twenty claims under bond and lease from the Millicks and Fox for $300,000 and five other claims held by location. The company established a camp called Minerva, and by late April had fifteen men at work on the property.[58]

The Minerva district, according to the *Mining and Scientific Press* of May 20, 1916, was "apparently one of the best" tungsten deposits that had been opened in White Pine County. The veins were "intrusions in limestone," and the "ore a pearl-gray scheelite." The Scheelite Chief claim, just above the newly-established camp, was "one of the best developments along the range" and was "of bonanza quality." Years before it had been worked for silver, but was abandoned without the presence of tungsten ore being detected. The vein showed a continuous outcrop of 1,200 feet. At the main workings the ore-shoot had "been proved for 80 ft., averaging 9 ft. in width, from which four cross-section samplings showed an average at surface of 2.85% tungstic acid." The owners were mining and sacking ore "from a high-grade streak 2-1/2 to 3 ft. wide" that would "yield 15%." Some of the selected ore contained up to fifty percent.

The Oriole vein, paralleling the Scheelite Chief about 1,500 feet to the north, could be traced some 3,500 feet and was producing "some fine ore." The vein varied from one to nine feet in width, and "samples along 70 ft., for an average width of 7 ft." showed "an average of 1.91% tungstic acid." Some "high-grade shoots" had been cut, and a large quantity of ore was being sacked.

---

55. *White Pine News*, December 5, 1901, April 6, 1905, April 24, 1907, and September 26, 1907.

56. "Review of Mining – Ely, Nevada," *Mining and Scientific Press*, CXI (December 25, 1915), 983.

57. "Review of Mining – Ely, Nevada," *Mining and Scientific Press*, CXII (April 1, 1916), 485.

58. "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXII (May 6, 1916), 685.

One of the other veins of the group was the Everett at the north end of the property. Its outcropping was prominent and could be traced for some 4,500 feet. Samples "in a 65-ft. shaft, across 5-1/2 ft. of ore" gave "1.12%, and a 12-ft. sample, 50 ft. west of the shaft, gave 3.60%." A small shoot paralleling the main vein was "practically all high-grade ore," and five sacks taken from the vein "and hand panned yielded 200 lb. of 64% concentrate."

There were also other scheelite claims in the vicinity. Arnold Millick, W.S. Elliott, J. Briggane and others had "a good group of claims north of Minerva" on which development was underway "on veins from 4 to 10 ft. wide." Clyde Tilford, Sheriff Crain, T. Barton, and D. Millick also had "some promising claims in this neighborhood" on which development was "in progress with good results."[59]

The Nevada Scheelite Company installed a small plant for sampling purposes. It engaged in mining operations during the summer, selling some tungsten on the open market and some to the United States Tungsten Corporation at the Hub Mine.[60]

The extensive mining operations at Minerva brought a continuing stream of miners to the area. By the summer of 1916 there was a force of 200 men in the camp, which quickly became a small tent city. The manager of the boarding house was Josie Pearl, a colorful woman who was once dubbed "Queen of the Black Rock Country." One writer described her in rather querulous terms:

> Her dress was calico with an apron over it. On her head was a farmer's straw hat, on her feet a pair of mismatched men's shoes, and on her left hand and wrist $6,000 worth of diamonds. This was Josie, contradiction all over and a sort of "Tugboat Annie" of the desert. Her whole life had been spent hunting for gold in the ground. She was a prospector. She had been at it since she was nine, playing a man's part in a man's game.[61]

The Minerva Tungsten Corporation was incorporated in Nevada in 1918 to develop seventeen tungsten claims covering 340 acres in the Minerva district. The firm was capitalized at $350,000 and had offices in Los Angeles, California, and Pioche, Nevada. The scheelite ore on the claims occurred "in a quartz vein in limestone dipping 55° with E.W. course and 9 to 50' wide." The shoots were up to 750 feet long, and the ore carried 1 to 40 percent tungstic acid as scheelite. Ten tons of 70 percent concentrate were produced from "test runs" during 1918.

By 1919 development by the Minerva Tungsten Corporation included a 100-foot vertical shaft, two tunnels of 200 and 350 feet at a depth of 150 feet, and total workings of 3,000 feet. Ore that was blocked out amounted to 25,000 tons with a total of 100,000 tons probable. Equipment on the site included gas engines, a compressor, drills, a 3-1/2-mile pipeline for water, and a 150-ton gravity concentrating mill below the Scheelite Chief Mine.

---

59. "Review of Mining – Ely, Nevada," *Mining and Scientific Press*, CXII (May 20, 1916), 762.

60. "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXII (June 24, 1916), 958.

61. Effie O. Read, *White Pine Lang Syne: A True History of White Pine County, Nevada* (Denver, Big Mountain Press, 1965), p. 186.

Pending an improvement in the tungsten market, however, operations were confined to development and experimental work at the mill.[62]

By 1923 the mill had closed and been dismantled, most of the machinery being shipped to the Comet Mine at Pioche. With the exception of a small-scale leasing operation in 1932 and a small shipment of low-grade silver-gold ore in 1934, the property at Minerva remained idle until 1936.

In September of that year the Tungsten Metals Corporation of Ely reopened the scheelite mines and a 75-ton diesel-powered gravity and flotation mill in the district. The chief mines operated by the corporation included the Scheelite Chief, Oriole, West Everitt, East Everitt, and Silver Bell. During the next three years some 75,000 tons of ore were mined, producing more than 600 tons of 70 percent tungsten concentrate while employing a force of some 40 men. By late 1939 the corporation was second to the Nevada-Massachusetts Company in tungsten production in the state. Production reached its peak in 1940 when nearly $1,200,000 worth of tungsten was mined. By that year the district had produced a total of some $1,750,000, most of which came between 1937 and 1940 as a result of the operations of the Tungsten Metals Corporation.[63]

The U.S Bureau of Mines, in cooperation with the U.S. Geological Survey, developed the property of the Tungsten Metals Corporation during 1940-41 and 1943. The property consisted of seven patented and some forty unpatented claims on the southern portion of the tungsten-bearing veins at Minerva. The work consisted of surface trenching and diamond drilling from November 1940 to June 1941 and from August to December in 1943. The purpose of the project, as authorized by the Strategic Materials Act, was to determine possible reserves of tungsten in the downward extension and lateral eastern extension of three major tungsten-bearing quartz veins. Development during 1940-41 consisted of surface trenching, sampling, ad diamond drilling 37 holes for a total of 6,959 feet. Subsequent drilling of eight holes, totaling 3,067 feet, in 1943 disclosed additional reserves.

The Minerva mill, which had been enlarged to 150-ton capacity in 1940, was operated with power supplied by two 180-horsepower diesel engines direct-connected to 440-volt, 100-kv., alternating current generators. The mill was considered to be one of the finest of its kind in the United States at that time. Mill recovery was estimated to be 80 percent on normal mill lead containing 1 percent tungstic trioxide with concentrates containing 64 to 70 percent tungstic trioxide.

Living quarters were provided for some 45 company employees at the Minerva camp by 1943. One large bunkhouse and several small houses were available for single men, and other small houses were rented to married men for a nominal sum. A company mess hall was operated by a contractor who supplied board to the men at $1.50 per day. The employees had the use of a bathhouse with showers, toilets, laundry room, and reading

---

62. Walter Harvey Weed, *International Edition, The Mines Handbook* (New York City, W.H. Weed, 1920), p. 1,070, and Office of George W. Malone, United States Senate, Nevada, "Resources Report, White Pine County, Nevada, 1958," p. 142.

63. "News of the Industry – Nevada," *Engineering and Mining Journal*, CXL (November, 1939), 68, and Nevada State Bureau of Mines, Geology and Mining Series No. 38, *Nevada's Metal and Mineral Production (1859-1940, Inclusive)*, by Bertrand F. Couch and Jay A. Carpenter, University of Nevada Bulletin, XXXVII (November 1, 1943), 143, 148, 151. Paul J. Sirkegian, chief geologist for the Consolidated Copper Mines Corporation at Kimberly, was president and manager of Tungsten Metals, and W.L. Trent was mill superintendent.

room. All employees worked a seven-day week, the miners and mill operators being paid $7.51 per day and muckers and mill helpers $6.97 per day.[64]

During the years 1941-45 the Tungsten Metals Corporation continued to operate the Scheelite Chief, Oriole, Everitt, and Silver Bell mines. Each year the U.S. Bureau of Mines *Mineral Yearbook* rated these mines as among the smaller but nevertheless important producers of primary tungsten concentrates in Nevada. Near the end of World War II, on May 31, 1945, the four mines were closed, and the mine and mill equipment removed. Thus, between 1936 and 1945 the Tungsten Metals Corporation's mines produced more than 110,000 tons of ore, or 83,000 units of tungstic trioxide, valued at more than $1,500,000.[65]

A study of tungsten deposits in the Minerva district by Dwight M. Lemmon of the U.S. Geological Survey in February 1944 indicates that two other companies were operating in the district during World War II. The Calico Tungsten Company, a partnership between Hadley R. Bramel and Stanley Feitler, was working three unpatented claims on a single vein – the Canary Yellow, Calico, and Zigzag claims. With the exception of surface cuts, work was concentrated at the Canary Yellow Mine.

The Shoshone Mining Company, a partnership among A.J. O'Connell, W.L. Trent, J.E. Brinton, and Horace Bath, possessed the Hilltop group of six unpatented claims known as the Hilltop, Tony, Tony No. 1, Tony No. 2, Tony No. 3, and Tony No. 4. The claims were worked by the New Deal Leasing Company in 1940-41, the Scheelite Leasing Company in 1941, and the Virdot Development Company in 1942. The Tony prospect was operated by the Tungsten Metals Corporation for a short period in 1940-41. Most of the production up to 1944 had come from the Hilltop Mine, which yielded at least 2,106 units of tungstic trioxide.[66]

In 1947 the property at Minerva was acquired by the Minerva Scheelite Mining Company, a family-operated firm owned by Robert Stopper, Edward Stopper, and Dr. Martha Allen. Robert Stopper, a Stanford mining graduate formerly employed by the U.S. Geological

---

64. U.S. Bureau of Mines, "Investigation of Tungsten Metals Corp. Deposits (Minerva Mining District), White Pine County, Nev., Report of Investigations 4648," by E.W. Newman, Robert W. Geehan, and Russell R. Trengove, March 1950, pp. 1-12.

65. U.S. Bureau of Mines, *Minerals Yearbook, 1941* (Washington, Government Printing Office, 1943), pp. 648-49; U.S. Bureau of Mines, *Minerals Yearbook, 1942* (Washington, Government Printing Office, 1943), p. 679; U.S. Bureau of Mines, *Minerals Yearbook, 1943* (Washington, Government Printing Office, 1945), p. 677; U.S. Bureau of Mines, *Minerals Yearbook, 1944* (Washington, Government Printing Office, 1946), p. 659; and U.S. Bureau of Mines, *Minerals Yearbook, 1945* (Washington, Government Printing Office, 1947), p. 667.

66. U.S. Geological Survey, "Tungsten Deposits in the Minerva District, White Pine County, Nevada," by Dwight M. Lemmon, February 1944, pp. 14-16, File No. 332, Minerva Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

Survey, managed the property. Under his direction the Scheelite Chief Mine was rehabilitated and a new 35-ton gravity concentrating mill was constructed to treat the ore.[67]

The following year the Minerva Scheelite Mining Company, and its successor the M.I.A. Company, received a loan of $128,550 from the Defense Minerals Exploration Administration (DMEA) to explore the Canary Yellow and Minerva mines. The M.I.A. Company was a joint venture of the American Zinc, Lead and Smelting Company and the Combined Metals Reduction Company, the latter having obtained a 25-year lease from Robert Stopper on about 90 percent of the Minerva Scheelite property in 1952. The Canary Yellow Mine and its associated 15-ton gravity mill produced an unspecified amount of tungsten concentrates in 1953.[68]

Considerable mining activity was conducted in the Minerva district during 1954. Kerr and Jeppson mined 1,184 tons of tungsten ore, averaging 1 percent tungstic trioxide, from the Canary Yellow Mine, the ore being shipped to a custom mill. The M.I.A. Company continued to explore the Minerva Mine under a DMEA contract by advancing several levels, the ore being shipped to a Utah treatment plant. The Minerva Scheelite Mining Company continued development of the Scheelite Chief Mine and treated development and custom ore in its company mill. Tungsten tailings from various sources in the district were also treated at the mill.[69]

In 1955 the Minerva Mine yielded most of the tungsten produced in White Pine County. Nearly 10,000 short-ton units of tungstic trioxide were mined by the Minerva Scheelite Mining Company.[70]

The following year the Minerva district produced some 6,400 short-ton units of tungstic trioxide, comprising most of the county's tungsten production. The principal producers were the Everitt Mine operated by Minerva Scheelite and the Minerva Mine worked by M.I.A. Mines, which continued exploration for tungsten ore under the DMEA program. Ore from both mines was concentrated at the Minerva Scheelite mill.[71]

The U.S. Government discontinued the purchase of tungsten in 1957, thus hastening the end of active mining in the Minerva district. Although the Everitt and Hill Top mines and the Minerva Scheelite mill were active that year, no shipments were made.[72] In September 1958 the Minerva mill was destroyed by fire, and, with the declining market for tungsten,

---

67. U.S. Bureau of Mines, *Minerals Yearbook, 1948* (Washington, Government Printing Office, 1948), p. 1, 254; U.S. Bureau of Mines, *Minerals Yearbook, 1949* (Washington, Government Printing Office, 1949, p. 1, 238; U.S. Bureau of Mines, *Minerals Yearbook, 1950* (Washington, Government Printing Office, 1950, p. 1, 250; U.S. Bureau of Mines, *Minerals Yearbook, Area Reports, Volume III, 1952* (Washington, Government Printing Office, 1952), p. 590; and Office of George W. Malone, United States Senate, Nevada, "Resources Report, White Pine County, Nevada, 1958," pp. 142-43.

68. U.S. Bureau of Mines, *Minerals Yearbook, Area Reports, Volume III, 1953* (Washington, Government Printing Office, 1953), pp. 634, 674.

69. U.S. Bureau of Mines, *Minerals Yearbook, 1954, Volume III, Area Reports* (Washington, Government Printing Office, 1955), p. 707.

70. U.S. Bureau of Mines, *Minerals Yearbook, 1955, Volume 3, Area Reports* (Washington, Government Printing Office, 1956), p. 715.

71. U.S. Bureau of Mines, *Minerals Yearbook, 1956, Volume III, Area Reports* (Washington, Government Printing Office, 1957), p. 762.

72. U.S. Bureau of Mines, *Minerals Yearbook, 1957, Volume III, Area Reports* (Washington, Government Printing Office, 1958), p. 716.

no plans were undertaken for its replacement.[73] During the early 1960s some of the stockpiled concentrate at the Minerva and Everitt mines was shipped to the Nevada Scheelite tungsten carbide plant in Mineral County.[74] The last of the stockpiled tungsten concentrate, produced in previous years at the Everitt Mine, was shipped to a California paratungstate plant in 1964.[75]

A survey of the Minerva district by the U.S. Bureau of Mines in 1958 found that no mines were active "due to the depressed price of tungsten" and the removal of price supports for the mineral. Assessment work, however, was being continued on 53 unpatented lode and 8 patented claims in "the Minerva area." The seven principal mines in the district were described:

> The La Donna lead prospect is located in Swallow Canyon in projected sec. 4, T. 11 N., R. 68 E. An 80 foot adit, 2 short shafts, and a 75-foot surface cut explored a small showing of galena and corus-site lead associated with a limestone fissure.
>
> The Hilltop tungsten mine located in the north half of projected sec. 16, T. 11 N., R. 68 E. was developed by a 140-foot drift, 40-feet winne and stopes to surface. Scheelite ore was transported from the adit by an aerial tramway, now dismantled.
>
> Tungsten Queen mine (Canary Yellow) located near the center of projected sec. 16, T. 11 N., R. 68 E.
>
> East and West Everitt mines (tungsten) located in the north half of projected sec. 21, T. 11 N., R. 68 E.
>
> Oriole mine (tungsten) located in the west half of projected sec. 21, T. 11 N., R. 68 E.
>
> The Chief mine (Scheelite Chief) located in the entrance northwest corner of projected sec. 29, T. 11 N., R. 68 E.
>
> Silver Bell tungsten mine located in the north half of projected sec. 28, T. 11 N., R. 68 E., on the north slopes of Minerva Canyon.
>
> The above listed mines have estimated combined underground workings totaling over 10,000 feet.[76]

In 1968 Reginald G. Lee and Sons obtained a lease and option on the Minerva mines and mill site. For several years the Lees pursued small exploration efforts on the Minerva property which consisted of seven patented lode claims, one patented five-acre mill site, 69

---

73. U.S. Bureau of Mines, *Minerals Yearbook, 1958, Volume III, Area Reports* (Washington, Government Printing Office, 1958), p. 600.

74. U.S Bureau of Mines, *Minerals Yearbook, 1960, Volume 3, Area Reports* (Washington, Government Printing Office, 1961), p. 661.

75. U.S. Bureau of Mines, *Minerals Yearbook, 1964, Volume III, Area Reports: Domestic* (Washington, Government Printing Office, 1965), p. 662.

76. "Report on the Investigations of Mineralization In and Adjacent to the Humboldt National Forest, Mt. Wheeler Area," November 5, 1958, pp. 6-7.

unpatented lode claims, one sixty-acre placer claim, and twenty acres of deeded land used for the mill site, all of which were contiguous. The Lees began their exploration program by drilling rotary drill holes at the West Everitt Mine, and concluded that further exploration and development should be conducted on the Scheelite Chief, Everitt, and Oriole veins.[77]

According to the Nevada Bureau of Mines and Geology in 1976 total production for the district "probably" exceeded $2,000,000. Production records, however, are incomplete or not available. A copy of the available production records as noted in the report may be seen below.[78]

TABLE 22. Shoshone mining district, summary of recorded production through 1968.

[0, none; *. estimated, partly estimated, or computed; w, withheld to avoid disclosing individual company confidential figures; blank, figures not available]

Productive years	Ore, old tailings sold or treated (short tons)	Total value when sold $	Gold (ounces)	Silver (ounces)	Lead (pounds)	Tungsten (short ton units)
1869	Few					0
1911	22	1,735	0	411	33,706	0
1916-1918	>33,204	>63,208	0	0	0	>2,037
1932			0	0	0	Few
1934	41	456	3	550		0
1936-1943	11,516	1,667,559	0	150	0	83,000
Do.	14	712	0	224	11,600	0
1944-1945			0	0	0	8,500
1946	3	60	0	74	0	0
1947			0	0	0	
1948	37	2,301	0	249	11,600	0
1948-1962	0	0	0	0	0	0
Totals	143,837	1,742,031	3	1,658	56,906	93,537

MOUNT WASHINGTON (LINCOLN) MINING DISTRICT

Location

The Mount Washington Mining District, once known as the Lincoln district and sometimes referred to as the St. Lawrence or Mount Wheeler district in recent years, covers the west slope of the Snake Range from Williams Canyon south to Lincoln Canyon. It includes Mount Washington and Lincoln Peak near its eastern boundary and is approximately coextensive with T. 12 N., R. 68 E.[79]

History

The first discovery in this district was the so-called Washington copper-lead-antimony deposit on Mount Washington on July 10, 1869. Two days later, the Lincoln district was established, including areas on the east slope of the Snake Range that later became part

77. Reginald G. Lee, "Summary of Report on Minerva Tungsten Mines, White Pine County, Nevada," May 20, 1971, File No. 332, Minerva Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

78. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, pp. 76-77.

79. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 58.

of the Snake and Lexington districts. The Nevada state mineralogist described this district in his report for 1869-70:

> This district is principally on the western slope of the Snake mountains, about fifteen miles south of Sacramento District. Wheeler's Peak, formerly known as Jeff Davis' Peak, is immediately north of Lincoln district. This peak is very prominent, having an altitude of twelve thousand three hundred and nine feet above the sea level. The body of this mountain is quartzite. . . . On the east side of the mountain, there is a great abundance of timber, consisting of fir, white and yellow pine and tamarack. Trees three feet in diameter attain an altitude of one hundred and seventy-five feet, and are very straight. Mountain mahogany, nut, pine and juniper are common. Water occurs in springs sufficient for mining purposes. Bunch grass is very fine. Several small streams flow down the eastern slope of the mountains, and are tributary to Snake Creek. Snake Creek Lake, in the valley east of the mountain, is about two miles long, and probably a quarter of a mile wide. Trout abound in it. There are several thousand acres of fine meadow and agricultural lands in this neighborhood.
>
> The valley on the west has a strip of meadow land, some of it fine for agricultural purposes, extending along the valley for about fifteen miles; there are a great number of very fine springs and a grove of red cedar trees, or rather a succession of groves for several miles; hardy vegetables, corn, wheat and barley do well. The mines are in a timbered region, in a belt of limestone.

The report elaborated on the most significant early mines in the district:

> The Washington mine was located July 12th, 1869. Eight hundred feet are claimed; width of croppings about eight feet; the ore runs in a seam about four feet wide; specimens assayed $517 per ton, carrying some copper, lead and antimony. This mine is nearly on the summit of the mountain, at an altitude of nearly eleven thousand feet above sea level.
>
> The Ohio is west of the Washington about one hundred feet on a parallel vein; the claim covers eight hundred feet; course, north. The location was made July 12th, 1869; width, from eight to twelve inches.
>
> The Iowa is a few feet from the Ohio; is on a parallel vein three feet wide; the ore shows copper and chloride of silver; there are great quantities of spar, black and white, cropping about this ledge.
>
> The north and south extensions of the Washington are similar to the Washington in every respect; they are each terminated by breaks in the hill, making precipices from five to fifteen hundred feet high.
>
> The Buena Vista and Worcester are parallel on the Buena Vista Hill. There are eight hundred feet in each claim; course, north; the claims are a hundred feet apart; the ore is similar to the ore from the Washington; there are several other claims on this hill.
>
> The Young America extends east and west, along a cañon between the Washington and Buena Vista hills; the ore shows through a distance of eight

hundred feet. The claim covers one thousand feet, and was located July 31st, 1869; the vein matter is about eighteen feet wide.

The Canaan crops along the crest of a spur of the mountain near the west end of the hill, six or eight feet in height; and through a distance of one thousand six hundred feet. Width from eight to ten feet. It was located July 21st, 1869; the claim covers eight hundred feet.

The Balbach is the western extension of the Canaan; the Carson is the eastern extension; there are six claims further east on the same vein.

The Sheffield is on the northwestern face of the Buena Vista hill; course, north. A cross vein cuts the Sheffield at right angles, and is called the Cross Lead; each vein is about three feet wide, with vein matter extending to the width of twelve feet; they crop boldly at the foot of a precipice seventy feet high; the Cross Lead shows all the way up the precipice.

The Passaic is situated two thousand feet south of the Sheffield. It was located August 1st, 1869. One thousand two hundred feet are claimed; width of vein matter twelve feet, showing ore in spots, which assays $62 in silver; it carries galena.

There are many other claims, all showing ore more or less, but no developments have been made. The mineral belt is about four miles long, north and south, and about two miles wide. The mountain is exceedingly broken and rough.[80]

Despite the promise of these mines, however, the inaccessibility of the Mount Washington area and its distance from a railroad made it impractical to engage in active full-scale operations.

In 1899, some thirty years after the initial discoveries at Mount Washington, William Bacon, a long-time prospector in eastern Nevada, located claims "along the strike of the vein" that would later become the focus of the St. Lawrence Mine. He sank shallow shafts at various places along the vein for a distance of nearly two miles and found lead ore in each. From these openings he mined several tons of ore which he took down the mountain on mule back and shipped to a Salt Lake City smelter by wagon and railroad. The ore averaged 77 percent lead and 66 ounces of silver per ton.[81]

The silver-lead claims on Mount Washington were apparently purchased by A.H. Vaughan of Seattle, Washington, for $6,000 in late 1903. Several years later in February 1906 the *White Pine News* reported that a 20-foot tunnel had been excavated at Mount Washington and a rich vein of ore contacted. A boarding house, bunkhouse, and blacksmith shop had been completed, and three shifts of men were working on the tunnel under the management of Orson Hudson.[82]

---

80. *Report of the Mineralogist of the State of Nevada For the Years 1869 and 1870*, pp. 95-96.

81. "The St. Lawrence Mine," F.C. Williams, President and General Manager, July 30, 1908, File No. 331, Lincoln Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno. Also see H.D. Keiser, "Development of St. Lawrence Property, Near Ely, Nev., Started," *Engineering and Mining Journal*, CXXV (June 16, 1928), 987.

82. "Mining Summary – Nevada," *Mining and Scientific Press*, LXXXVII (November 14, 1903), 327, and *White Pine News*, February 20, 1906.

These mining activities led to the establishment of the St. Lawrence Mining Company. In August 1906 the aforementioned Bacon and F.C. Williams formed the Adirondack Mining Company to develop the ledge of silver-lead that ran for some thirty feet and had estimated values of $60 per ton. Officers of the new company included D.G. Cahoon of Rochester, New York, as president, Williams as general manager, and John Reynolds as director. Later in September 1907 the company was reorganized as the St. Lawrence Mining Company with a capitalization of $2,000,000. Among the leaders of the new concern were Williams as president, Reynolds as director, and Orson Hudson, as assistant manager. The earliest efforts of the new firm were to extend operations along the St. Lawrence ledge to the south and drive a cross-cut some 25 feet through the ledge at the 600-foot level.[83]

In July 1908 Williams described the property, facilities, and operations of the St. Lawrence Mining Company in a lengthy report. He stated:

> The property now consists of thirty claims (over 600 acres), valuable water rights and equipment.
>
> There are eighteen (18) lode claims, each 1500 feet by 600 feet. Six are along the strike of the main vein for a distance of 9000 feet. Twelve claims parallel these and are very heavily timbered. The other twelve are placer claims and mill sites, etc.
>
> The Company's water rights are ample for a mill or from 500 to 1000 tons daily capacity and can be developed for power under a thousand foot head. The distance from the mill site is only about one mile.
>
> The strike of the vein is east of north and runs over the summit of Mt. Washington, a mammoth limestone mountain. The mountain has been split by a large fissure vein which can be traced the entire length of the claim. The lime formation which the vein cuts is estimated to be about 2500 feet deep. The vein cuts through the characteristic lime and quartzite formation in which the great lead-silver mines are found.
>
> The conditions obtaining for economical mining cannot be surpassed. It is an ideal tunnel proposition, the contour of the ground being such that a tunnel driven in on the vein gains a depth of nearly one foot for every three feet driven which will eventually reach a depth of 3000 feet. A depth of 1000 feet more can be gained by a cross-cut channel started in Lincoln Canyon, near the mill-site, by driving about 3000 feet.
>
> No hoisting of ore or pumping of water will ever be necessary, which is a most important feature. The timber is in great abundance, sufficient to last the company a great many years. It is located above the workings, is very accessible, requiring but little handling to bring it to the mine.
>
> The mine is developed by tunnels and cross-cuts, also by shafts and surface openings. There are at present three tunnels driven in directly on the vein. One is in 700 feet reaching a depth from the surface of 300 feet. This tunnel has opened ore shoots several hundred feet in length and from 20 to 60 feet wide. About 400 feet from the mouth, a cave was encountered about 80 feet long, 20 feet wide and from 40 to 60 feet high. The floor was covered with ore

83. *White Pine News*, August 21, 1906, and April 6, July 11, September 5, 7, 12, and October 19, 24, 1907.

and chunks of galena were found weighing from 100 to 600 pounds, assaying 80% lead and 60 ounces silver. The other two tunnels are each in about 100 feet and are in ore all the way.

The vein is exposed by shafts and surface openings short distances apart, for a distance of nearly two miles on the company's claims, showing ore in every opening. The shafts are from 5 to 50 feet deep and the cross-cuts show the vein to be from 20 to more than 60 feet wide.

The character of the ore so far explored is lead-silver, a great percentage being galena, shot through the decomposed lime, while occasionally sand and hard carbonates are encountered; the ore for the most part, is of a concentrating nature; however, there is considerable high grade ore which can be sorted, needing no concentration. All the ore, no matter how low grade, carries silver. The silver is held in combination with the lead, the gangus carrying no value. The character of the ore is such, that in concentrating it, only the simplest kind of machinery is required to save the values.[84]

In September 1908 the *Mining and Scientific Press* reported that the St. Lawrence Mining Company would soon "start construction on a 100-ton mill in Lincoln Canyon." A one-mile gravity tramway would carry the ore from the mine to the concentrating mill. The foundation would be built that fall, but actual construction "of the mill and an aerial tramway" would be "rushed" the following spring. The ore was said "to contain 60% lead and some silver."[85]

In April 1909 the *Mining and Scientific Press* reported on the continuing progress at the St. Lawrence Mine. The mining company had employed six men during the winter, "developing a body of lead ore, much of which samples 40 to 60% lead and 40 oz. silver per ton." The work, which was managed by F.C. Williams and supervised by Orson Hudson, was opened by "an adit that has been driven 400 ft. on the vein." By extending the adit further, a "depth of 300 ft." would "be gained, as the mountain at this place" rose "abruptly to that height." An aerial tramway from the mine to the valley below was still planned, "requiring a line 2 miles long."[86]

By 1911 the St. Lawrence Mine consisted of a series of five tunnels on the vein, "making levels 100 feet apart." That year 22 tons of lead-silver ore were produced at the mine, which was the only active operation in the district.[87]

The St. Lawrence Mine continued to operate during World War I, producing high grade ore averaging 75 percent lead and 60 ounces of silver per ton. It was reported that sturdy cabins were constructed of bristlecone pine to house the miners. Since road access was not available, the ore was sacked and transported down the mountain by mule, and during

---

84. "The St. Lawrence Mine," July 30, 1908, by F.C. Williams, File No. 331, Lincoln Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

85. "General Mining News – Nevada, *Scientific and Mining Press*, XCVII (September 19, 1908), 374.

86. "General Mining News – Nevada – White Pine County," *Mining and Scientific Press*, XCVIII (April 17, 1909), 539.

87. U.S. Geological Survey, *Mineral Resources of the United States, Calendar Year 1911, Part I – Metals* (Washington, Government Printing Office, 1912), p. 702.

the war it was even tobogganed off the mountain on rock sleds that followed a nearby hogback ridge.[88]

Apparently, operations at the St. Lawrence Mine were either discontinued or scaled-back drastically in the aftermath of World War I. Extensive development of the property was not recommenced until April 1928 when new operations were planned with financial backing from New York investors. The projected work included driving of a 1,700-foot 8x8-foot tunnel to intersect the ore body some 2,050 feet below the lowest of the five tunnels drilled during the early 1900s. The new tunnel would intersect the ore body "at a point about 1,700 ft. from the portal and 1,200 ft. below the lowest ore exposure." Construction of roads and camp buildings began on April 1, following the acquisition of a bond and lease on the property in February. Seven patented claims in the St. Lawrence group, all along the strike of the ore zone, and twelve additional claims with water rights and suitable mill sites comprised the New York-based company's holdings. By June seventeen men were employed, and operations were in charge of E. Henderson, former manager of the Franklin Mine near Houghton, Michigan. The geologic nature and company operations were described in the *Engineering and Mining Journal* on June 16, 1928:

> The lead-silver ore deposits occur as replacements in large limestone beds, having an approximate thickness of 2,500 ft. and underlain with quartzite. These beds have been elevated 12,500 ft. in the northern part of the property, where they have a southerly dip of about 35 deg. The most pronounced geologic feature on the property is a great composite fracture, 40 ft. in width, called the St. Lawrence lode. This has broken across the bedded formation for at least 12,000 ft. Later fractures cut the St. Lawrence lode at right angles and enlarge it at the points of intersection. No igneous rocks are found on the property itself, but in the region of Mount Wheeler, 4 miles north, large masses of porphyry are exposed, and prominent dikes, running in a southerly direction toward the St. Lawrence property, intrude the sedimentaries. These dikes are apparently the source of the mineralization.
>
> All necessary equipment is on the property, including an 80-hp. heavy duty type C-SS Primm oil engine; one WG-6 12x10-in. 380-cu. ft. Sullivan compressor with a 48x10-in. air receiver; a 11-1/2-kw. 125-volt Westinghouse generator; a T-4 Coppus blower and a rotary power saw. Surface buildings comprise a 20x40-ft. compressor house; three-room office building; one superintendent's building; three bunk houses; and a kitchen and boarding house.
>
> A 2-in. gravity pipe line 7,000 ft. long, running from a spring, 1,500 ft. above the camp site, is used in conveying water to the camp. The property is well timbered, which is unusual for a Nevada camp, and is favorably situated as regards highways, there being good roads from the camp to Ely and to Pioche, 70 miles distant.[89]

---

88. Read, *White Pine Lang Syne*, p. 185, and U.S. Congress, Senate, Committee on Interior and Insular Affairs, *Great Basin National Park In Nevada: Hearings Before the Subcommittee on Public Lands of the Committee on Interior and Insular Affairs, United States Senate, Eighty-Sixth Congress, First Session on S. 2664 . . . . Ely, Nevada, December 5 and 7, 1959* (Washington, Government Printing Office, 1960), pp. 59-60. Hereinafter, this document will be referred to as *1959 Ely Hearings.*

89. "Development of St. Lawrence Property," *Engineering and Mining Journal*, XLVIII (June 16, 1928), 987.

Development of the St. Lawrence Mine soon languished, however, as a result of the onset of the Great Depression in 1929. For the next twenty years various "desultory leasing operations were conducted by pioneering spirits with but small production."[90]

During the summer of 1948 three men, James G. Hulse, Victor Coltins, and Shirley Robison of Pioche and Ely, constructed a jeep road from Spring Valley to the top of the St. Lawrence claims. The men mined the claims during 1948-49 and shipped four railroad carloads of lead-silver ore, averaging about 30 percent lead and 18 ounces of silver per ton. A total of 75 tons of ore were produced, yielding 915 ounces of silver, 16 pounds of copper, and 56,836 pounds of lead. When the price of lead declined during the summer of 1949, the operation became uneconomical and activity halted.[91]

In July 1950 James D. Williams, a resident of Salt Lake City and operator of mines in Nevada and Utah, obtained agreements from the three men conveying their operating rights. Soon thereafter, Williams interested the Combined Metals Reduction Company and the American Zinc, Lead and Smelting Company in providing initial funds to examine, map, and explore the St. Lawrence lead-silver fissure "from a lower elevation by means of a long adit tunnel" in Lincoln Canyon. In November he established Mount Wheeler Mines, Inc., a firm in which he served as president, director, and general manager. During the tunnel work substantial deposits of previously unknown tungsten ore were discovered, and by 1954 some 4,000 tons of the ore, averaging 1.10 percent tungstic trioxide, were shipped to a Stockton, Utah, plant for treatment and smelting. This initial work was done with the assistance of DMEA funds, and in the aggregate approximately $1,000,000 of gross value tungsten ore was delineated but not mined because of the expiration of the domestic tungsten purchase program of the U.S. Government. Significantly, the fissure was found to be the source of beryllium in 1951.[92]

In 1954 an agreement was made with the Cyprus Mines Corporation, whereby it undertook to advance the tunnel an additional 7,000 feet by drilling a second adit in Pole Canyon, some 1-1/2 miles south, to further explore the ore body. To this end additional DMEA funds were granted, some 200 men were employed, and approximately 200 tons of tungsten ore were produced daily for a short period. A concentrating mill was started on Willard Creek to process the ore. The venture was a failure, however, because the fissure was never cut nor identified at the horizon of the long tunnel. At a number of points within this tunnel, however, beryl "was observed although apparently not in quantities sufficient to excite either the DMEA or Cyprus Mines." This discovery was significant because beryllium was lighter than aluminum and stronger than steel and thus had far-reaching advantages for use in missiles, rockets, and other facets of the space industry. At the conclusion of this venture in 1957 it was decided to remove all the machinery, buildings, and personal

---

90. *1959 Ely Hearings*, p. 199.

91. Ibid., and U.S. Bureau of Mines, *Minerals Yearbook, 1949*, pp. 1,532 and 1,538.

92. U.S. Congress, Senate, Committee on Interior and Insular Affairs, *Great Basin National Park Hearing Before the Subcommittee on Public Lands of the Committee on Interior and Insular Affairs, United States Senate, Eighty-Seventh Congress, First Session on S. 1760 . . . . August 3, 1961* (Washington Government Printing Office, 1961), p. 70. (Hereinafter, this document will be referred to as *1961 Hearing*). U.S. Bureau of Mines, *Minerals Yearbook, Area Reports, Volume III, 1952*, pp. 576, 608; U.S. Bureau of Mines, *Minerals Yearbook, Area Reports, Volume III, 1953*, pp. 634, 672; and U.S. Bureau of Mines, *Minerals Yearbook, Area Reports, Volume III, 1954*, p. 706.

property at the tunnel and camp locations because of the high cost of maintaining adequate protection.[93]

A survey of the Mount Washington district by the U.S. Bureau of Mines in 1958 found no active mining operations. There were, however, 11 patented and 99 unpatented claims held by assessment work. The mines and associated features were described in the survey report:

> The Hudson Tunnel of the St. Lawrence lead-silver mine is located in projected sec. 14, T. 12 M., R. 68 E. It explores the St. Lawrence fissure for 700 feet by drift and raises. Other short drifts, shafts and cuts explore the fissure along a strike length of 1200 feet.
>
> The Bonanza Tunnel located in the north fork of Lincoln canyon in projected sec. 22, T. 12 M., R. 68 E. was started to crosscut the St. Lawrence fissure at depth. It was driven 330 feet before being abandoned.
>
> The Pole Adit (tungsten) portal is located in Pole Canyon in projected east portion of sec. 16, T. 12 N., R. 68 E. The workings extend easterly beneath the St. Lawrence mine for 8318 feet of crosscuts and drifts and 164 feet of raises.

93. *1961 Hearing*, p. 70; U.S. Bureau of Mines, *Minerals Yearbook, 1956, Volume III, Area Reports*, pp. 724, 762; and U.S. Bureau of Mines, *Minerals Yearbook, 1957, Volume III, Area Reports*, p. 716. See the following pages for DMEA maps of the development work. The maps are located in File No. 331, Lincoln Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

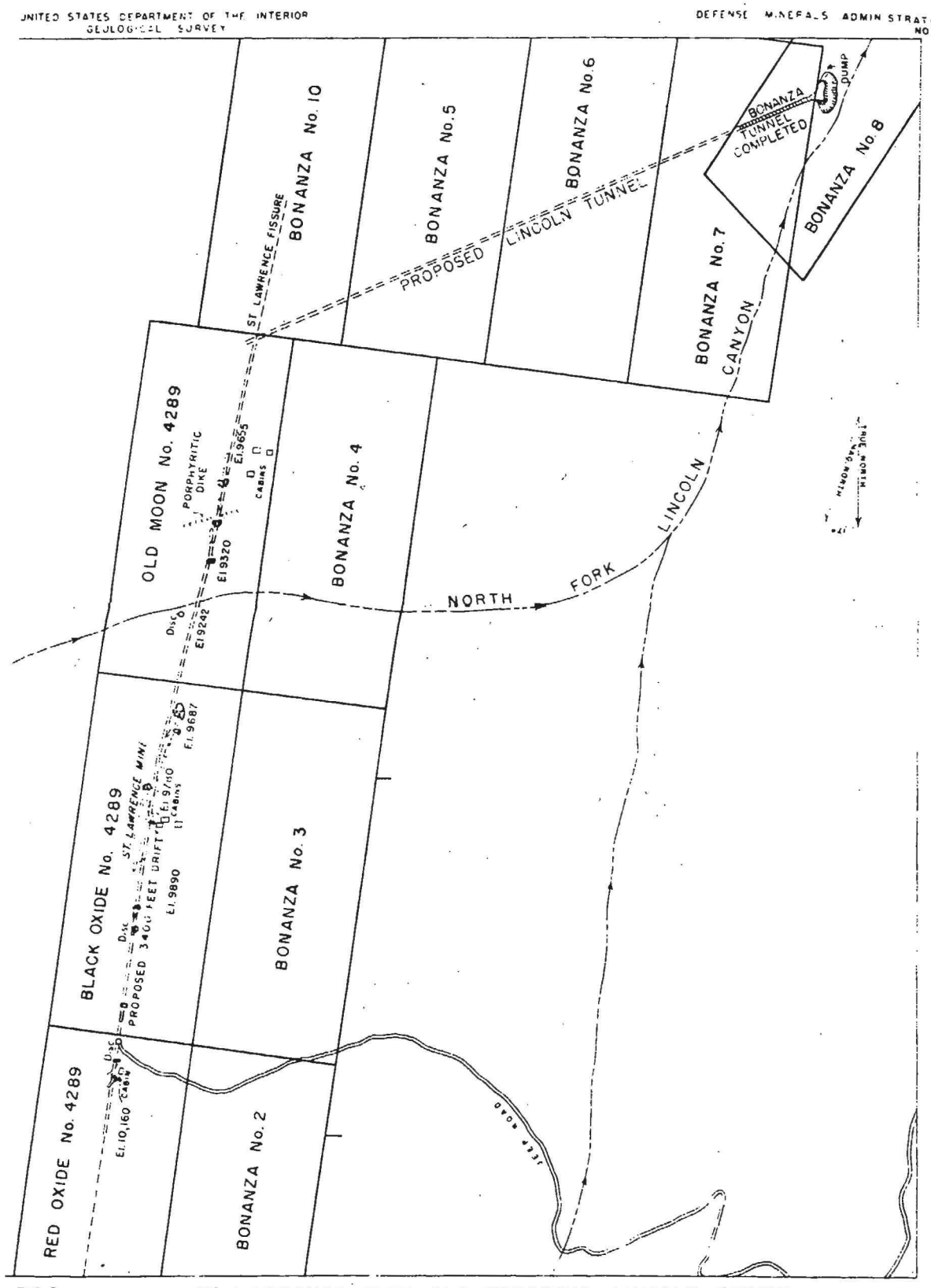
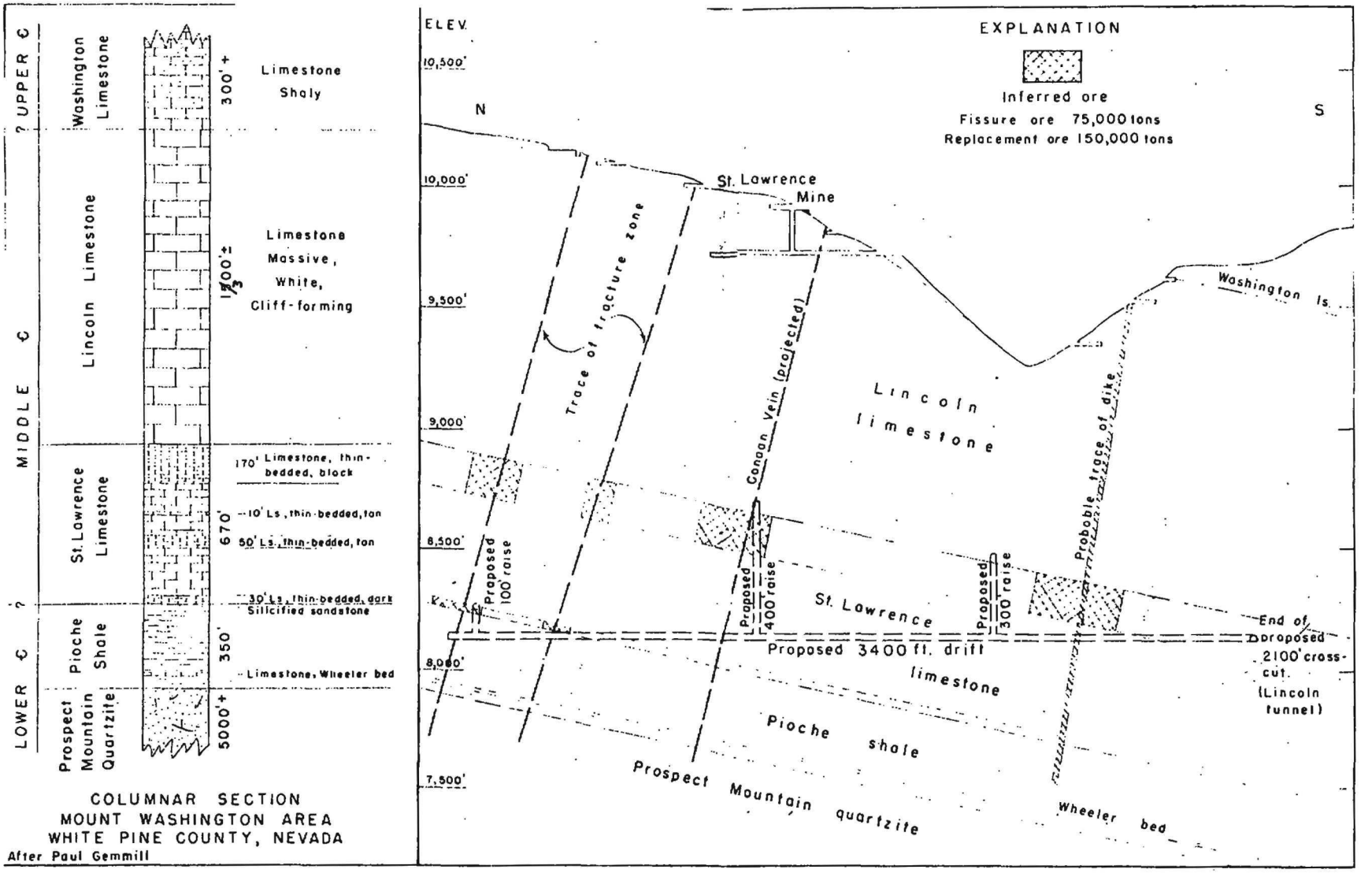


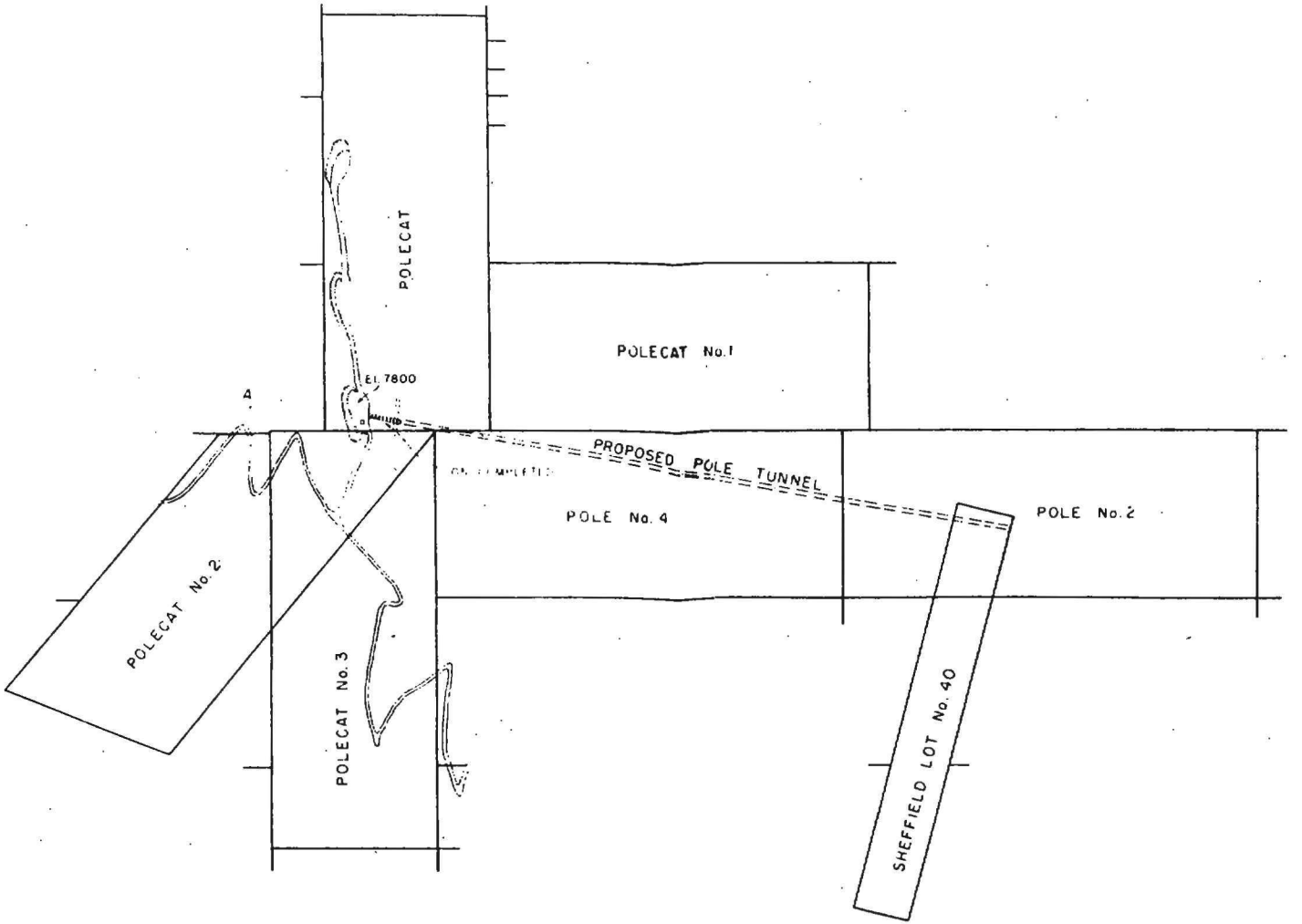
FIG.2 ST. LAWRENCE MINE AND PROPOSED LINCOLN TUNNEL
WHITE PINE COUNTY, NEVADA



COLUMNAR SECTION
MOUNT WASHINGTON AREA
WHITE PINE COUNTY, NEVADA
After Paul Gemmill

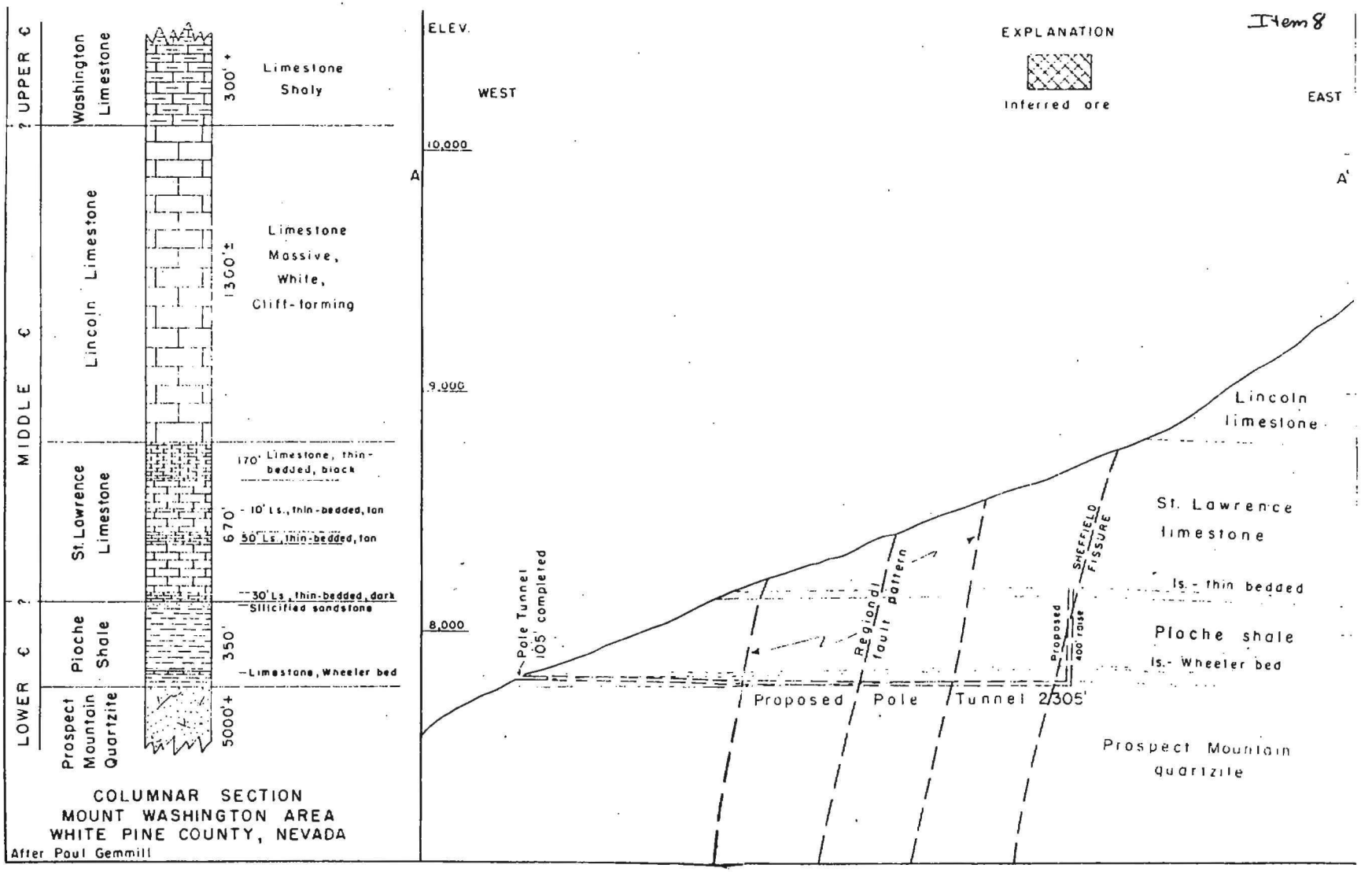
FIG. 3 LONGITUDINAL SECTION ALONG ST LAWRENCE FISSURE, WHITE PINE COUNTY, NEVADA

0 400 800 FEET
Scale



PROPOSED POLE TUNNEL
WHITE PINE COUNTY, NEVADA
0 400 800 FEET
SCALE

Item 8



COLUMNAR SECTION
MOUNT WASHINGTON AREA
WHITE PINE COUNTY, NEVADA
After Paul Gemmill

FIG. 3 SECTION ALONG LINE A A' — POLE TUNNEL, WHITE PINE COUNTY, NEVADA

The bureau concluded that several thousand tons of 0.8 percent tungstic trioxide were "indicated in the workings" of the Pole Adit which would "be of future economic importance." Surface showings at the St. Lawrence fissure would "undoubtedly continue to be prospected and mined, dependent on the current values of lead and silver." Possibilities existed that "further exploration" would "discover favorable replacement beds adjacent to the fissure at depth and large lead-silver reserves" would "be indicated."[94]

In 1958 the Research Center of the Kennecott Copper Corporation in Salt Lake City conducted a spectrographic analysis of the tungsten ore samples in the Mount Wheeler mining operations. This study revealed the presence of the beryllium-bearing minerals phenacite and bertrandite. The former was four times richer than beryl and was unique in that it was not associated with the usual pegmatitic deposition. At the time this was the only known deposit of its kind in the world. Soon the Bear Creek Mining Company, the exploration arm of the Kennecott Copper Corporation, conducted a comprehensive field examination of the Mount Wheeler properties. Similar examinations were made by the American Zinc, Lead and Smelting Company, the Food Machinery and Chemical Corporation, and the Hidden Splendor Mining Company. The field work associated with these investigations included 7,000 feet of underground diamond drilling, 450 feet of drifts, and 200 feet of tunneling. It was estimated that the Mount Wheeler properties contained reserves in excess of 100,000 tons of ore averaging more than 0.75 percent beryllium oxide.

In February 1959 the results of these examinations were made public. After lengthy negotiations Mount Wheeler Mines, Inc., was transferred under stock option to Salt Lake City-based Beryllium Resources, Inc., in anticipation of the payment of $1,900,000 for all of its outstanding common stock. The newly organized company was an exploration and development firm formed by the consolidation of four active North American uranium companies: Radorock Resources, Inc.; Federal Uranium Corporation; Lisbon Uranium Corporation; and Hidden Splendor Mining Company. Preliminary work in Pole Canyon consisted of a reserve determination and mineral assemblage study, followed by a pilot testing of the newly developed reagent on the ores. It was hoped that the beryllium could be concentrated to a minimum of ten and eleven percent beryllium oxide, after which it could be used either as an alloy with other metals or for making pure beryllium metal.[95]

In March 1960 Beryllium Resources, Inc., completed its exploration activities on the property of Mount Wheeler Mines, Inc., and relinquished its lease. Some 2,000 tons of development ore, averaging 0.5 percent beryllium oxide, was stockpiled. Other investigations, however, demonstrated that the deposit with the largest proven beryllium reserves and which showed the greatest adaptability to a recently-developed flotation process by the U.S. Bureau of Mines was located at Spore Mountain, some seventy miles northwest of Delta, Utah.[96]

Later in December 1960 the Anaconda Company acquired a two-year option on 103 claims of Mount Wheeler Mines, Inc., and 16 claims of the adjoining Jeppson group. The

---

94. "Report on the Investigations of Mineralization In and Adjacent to the Humboldt National Forest, Mt. Wheeler Area," November 5, 1958, pp. 4-7.

95. *1961 Hearing*, pp. 70-71; *Ely Daily Times*, September 21, 1959; U.S. Bureau of Mines, *Minerals Yearbook, 1959, Volume 3, Area Reports* (Washington, Government Printing Office, 1960), pp. 623, 627, 647; and U.S. Geological Survey and Nevada Bureau of Mines, Bulletin 65, *Mineral and Water Resources of Nevada* (Reno, Mackay School of Mines, University of Nevada, 1964), p. 74.

96. The new flotation process provided for treatment of beryllium ores with a solution containing the beryllium minerals of bertrandite and phenacite in association with calcite, fluorspar, mica, quartz, and other accessory minerals.

company planned extensive underground exploration and development of the known beryllium bearing zones and an investigation of the entire area to determine the extent of its beryllium mineralization. The company began construction of a 5,000-ton-per-day sulfide flotation plant. The U.S. Bureau of Mines Salt Lake City Metallurgy Research Center conducted concentration tests on the complex Mount Wheeler ores. Among other results, the tests revealed more beryllium than could be accounted for by the small quantities of beryl that had been observed at the mine.[97]

During 1961 underground exploration of the beryllium-bearing fissures and quartz veins of the Mount Wheeler Mine and adjoining Jeppson property was completed by a contractor for the Anaconda Company. Additional discoveries of beryllium minerals and fluorite were made more than a mile north of the Mount Wheeler Mine.[98]

In 1962 the Anaconda Company acquired the lease and option to the holdings of Mount Wheeler Mines, Inc., and continued exploration of its extensive beryllium deposit. The company's lease on the adjoining Jeppson property, however, was dropped. Ore from the Mount Wheeler Mine was sent to the U.S. Bureau of Mines research facilities in Salt Lake city for testing.[99]

Despite the promise of the Mount Wheeler Mine, the Anaconda Company announced termination of its interest in the beryllium property as of December 31, 1963, and abandoned its lease and option to the claims. At the same time it was reported that no activity had occurred "at the Swallow property and on the Bida and Robison claims in the same area."[100]

During an investigation in 1963 the U.S Bureau of Mines found that the Mount Wheeler property consisted of more than 180 lode claims. Tungsten ore produced from the development openings was stockpiled on the mine dump and contained about 0.7 percent tungstic trioxide.[101]

---

97. U.S. Bureau of Mines, *Minerals Yearbook, 1960, Volume 3, Area Reports*, pp. 636, 639-40, 661, and H.K. Stager, "A New Beryllium Deposit at the Mount Wheeler Mine, White Pine County, Nevada," in Short Papers in the Geological Sciences, Geological Survey Research 1960, *Geological Survey Professional Paper 400-B* (Washington, Government Printing Office, 1960), pp. B 70-71.

98. U.S. Bureau of Mines, *Minerals Yearbook, 1961, Volume III, Area Reports* (Washington, Government Printing Office, 1962), pp. 663, 685; Donald H. Whitebread and Donald E. Lee, "Geology of the Mount Wheeler Mine Area, White Pine County, Nevada," in Short Papers in the Geologic and Hydrologic Sciences, Articles 147-292, Geological Survey Research 1961, *Geological Survey Professional Paper 424-C* (Washington, Government Printing Office, 1961), pp. C 120-22; U.S. Bureau of Mines, "Flotation of Bertrandite and Phenacite From Mount Wheeler, Nev., Beryllium Ore, Report of Investigation 5875," by Richard Havens, W.I. Nissen, and J.B. Rosenbaum, 1961, pp. 1-14; Donald E. Lee and Harry Bastron, "Allanite from the Mount Wheeler Area, White Pine County, Nevada," *American Mineralogist*, XLVII (November-December, 1947), 1327-31; and Donald E. Lee and Richard C. Erd, "Phenakite from the Mount Wheeler Area, Snake Range, White Pine County, Nevada," *American Mineralogist*, XLVIII (January-February, 1963), 189-93.

99. U.S. Bureau of Mines, *Minerals Yearbook, 1962, Volume III, Area Reports* (Washington, Government Printing Office, 1963), pp. 677, 682.

100. U.S. Bureau of Mines, *Minerals Yearbook, 1963, Volume III, Area Reports* (Washington, Government Printing Office, 1964), pp. 695, 699.

101. "Mount Wheeler," USBM Unpubl. Data, 1963, File No. 331, Lincoln Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

FIGURE 193.1.—Simplified geologic map of the area in the vicinity of the Mount Wheeler mine, Snake Range, White Pine County, Nev.

During 1970-71 Mount Wheeler Mines, Inc., and the W.S. Moore Company of Duluth, Minnesota, commenced development and exploratory work on their property at the Mount Wheeler Mine. At that time the W.S. Moore Company held 99.2 percent of outstanding stock in Mount Wheeler Mines, Inc., under a purchase option. The property consisted of 11 patented and 73 unpatented claims in the St. Lawrence, Pole Cat, Pole, Canaan, and Bonanza groups. According to the *Mines Register* of 1970-71 the operations to date on the claims consisted of "17,000 ft. of underground working consisting of main 8,200 ft. Pole Adit & 8,800 ft. crosscuts, laterals, raises & drifts." The claims contained substantial "reserves of scheelite & phenakite-bertrandite beryllium ores." The St. Lawrence fissure contained "important lead-silver on surface & in shallow works." Fluorite was also considered to be an important "supplementary" value of the claims.[102]

During 1978-79 National Treasure Mines leased the Mount Wheeler Mine and properties. The firm contracted with the Centennial Development Company to conduct exploration and assess the Pole Canyon Adit. The decline in the price of beryllium, however, led to a cessation of activity. When prospects for the beryllium industry improved in 1986, National Treasure Mines completed a feasibility study on the "multi-mineral" deposit at the Mount Wheeler Mine.

The feasibility study described the Mount Wheeler Mine as "a multi-mineral deposit with potential for several millions of tons of beryllium, tungsten, tin, fluorspar, lead, zinc, and silver-gold ores. A two-phase project was recommended to develop mine-concentrator facilities for a capacity of 60,000 tons per year with planned expansion to 150,000 tons. The potential annual revenue was estimated to be $9,800,000 at 60,000 tons and $23,700,000 at 150,000 tons. Capital expenditures for the 60,000-ton operation were estimated at "$11.3 million with 2.5 years payback."[103]

OSCEOLA (WEAVER CREEK, SUMMIT DIGGINGS, HOGUM, WILLARD CREEK) MINING DISTRICT

Location

The Osceola Mining District, possibly once called the Centennial district, is the only predominantly placer gold district in White Pine County. It includes the Hogum, Weaver Creek, Willard Creek, and Summit Diggings areas, as well as the principal lode mines which are in the Dry Gulch area. The district covers both sides of the crest and the western slope of the Snake Range from Osceola summit south to Willard Creek. Nearly

---

102. U.S. Bureau of Mines, *Minerals Yearbook, 1970, Volume III, Area Reports* (Washington, Government Printing Office, 1971), pp. 456-57; U.S. Bureau of Mines, *Minerals Yearbook, 1971, Volume III, Area Reports* (Washington, Government Printing Office, 1972), p. 466; A. Karl Rannells, ed., *Mines Register*, Volume XXIX, 1970-1971 (New York, The American Metal Market Co., 1972), p. 197.

103. *Mining Record Newspaper*, June 4, 1986; Nevada Bureau of Mines and Geology, Special Publication MI-1986, *The Nevada Mineral Industry, 1986* (Reno, Mackay School of Mines, University of Nevada, Reno, 1987), p. 9; and "Minutes of National Treasure Mine Meeting, January 15, 1987," Great Basin National Park General Management Planning Team Files, Denver Service Center.

all of the gold mines are in T. 14 N., Rs. 67-68 E. In addition to the gold mines, the Bat Cave guano mine in Sec. 25, T. 15 N., R. 67 E., is included in the Osceola district.[104]

History

Gold lodes were discovered by two prospectors, James Matteson and Frank Heck, in August 1872, and the Osceola Mining District was established two months later.[105] The Exchange claim on the northeast slope of Pilot Knob Ridge above Dry Gulch was the first to be located. Other discoveries of gold-bearing quartz veins followed quickly in five principal groups: (1) Gold Exchange; 2) Mary Ann Canyon (Serpent); (3) Summit; (4) Whitney; and (5) Mulligan. The most extensive early underground workings were in the Star, Crescent, Time Check, and Exchange mines of the Gold Exchange group on Pilot Knob, the ores being milled by the old arrastra method employed by the Spanish.

Within several years mining operations had been developed at the Cumberland Mine and the Osceola, Golden Eagle, and Credit ledges. In his report for 1875-76 the Nevada state mineralogist described some of these operations:

> Through the courtesy of Mr. George G. Blair we are able to summarize the workings of this district during the last two years, as follows: The Cumberland mine, owned by the above gentleman, was located in October, eighteen hundred and seventy-four. At a depth of forty feet it shows a ledge six feet in width, which carries a very fair grade of free gold and gold-bearing sulphuret ore, which works sixty-five dollars per ton. The ledge runs east-northeast by west-south west, and stands almost perpendicular. The formation is quartzite.
>
> The Osceola ledge, also located and owned by Mr. Blair, has been worked by an incline to a depth of thirty feet, and shows a ledge sixteen inches in thickness. Some of the ore is of an excellent character. The footwall is quartzite, and the hanging wall is slate. The course is east and west, the pitch being south at an angle of seventy degrees.
>
> The Golden Eagle ledge, owned by James S. Matson, stands almost perpendicular, and is worked by a shaft one hundred feet in depth and a drift from the bottom running fifty feet east. The ledge is shown to be thirty-three inches in thickness. Also, one runs fifteen feet to the west, which shows the ledge twenty inches in thickness. The ore of this averages, according to various estimates, from twenty to fifty dollars per ton in gold, there being free gold and gold-bearing sulphurets in most all portions of the ledge.
>
> The Credit ledge, owned and worked by W.A. McDonald & Co., lies almost on the summit of the Snake range, and runs northwest by southeast, the pitch

---

104. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 60. An examination of the geology and mineral resources in the district may be found in F.B. Weeks, "Geology and Mineral Resources of the Osceola Mining District, White Pine County, Nev.," in U.S. Geological Survey, Bulletin 340, *Contributions to Economic Geology, 1907, Part I – Metals and Nonmetals, Except Fuels* (Washington, Government Printing Office, 1908), pp. 117-22; U.S. Geological Survey, Geological Survey Professional Paper 610, *Principal Gold-Producing Districts of the United States*, by A.H. Koschmann and M.H. Bergendahl (Washington, Government Printing Office, 1968), p. 200; and U.S. Geological Survey, Geological Survey Bulletin 1356, *Placer Gold Deposits of Nevada*, by Maureen G. Johnson (Washington, Government Printing Office, 1973), pp. 93-95.

105. The district was reportedly named for Osceola, the Seminole Indian Chief who led the fight against U.S. troops in Florida in 1835. This appellation was apparently adopted at the request of a Southern miner who was among those establishing the district. Read, *White Pine Lang Syne*, p. 151.

being southwest at an angle of forty-five degrees. The work is carried on by a tunnel in the mountain upon the ledge, which is eighteen inches in thickness, and produces some very fine ore.

There are other claims in the district which show fair prospects, but which have not yet had much work done upon them. There is but little silver produced, the bullion from the arastra process being worth about sixteen dollars per ounce. There is certainly enough ore here in these mines already opened to warrant the erection of more extensive reduction works for reducing the ore on a larger scale than can be done by the old-fashioned Mexican arastra. But the locators and owners of these mines are men of limited means, and are obliged to use the appliances at their command. Here is a good field for the investment of capital, and it is hoped the attractions at Ward will turn some of it hitherward.[106]

Between 1872 and 1878 some 100 claims were staked on the quartz veins in the Osceola district. According to the Nevada state mineralogist in 1878 the veins were

small, varying from one to three feet in width. The ores carry chiefly gold, and contain from ten to twenty dollars per ton. The veins run generally north-east by south-west. The Eagle is owned by Matteson & Co., the vein being about four feet in width. It is worked through a shaft and levels from different stations. More work has been done on this vein than on any other in the district. The Crescent is from two to three feet in width. Free gold and gold-bearing sulphurets are found in all the veins in the district, no attention being paid to the savings of the silver. Near the summit of the Snake range of mountains is found the Credit ledge. The vein is eighteen inches in width, and the work is done through a tunnel. During the past summer, a small mill was erected in the district, which has produced a good deal of gold bullion, worth about eighteen dollars per ounce.[107]

The production of the lodes, however, was not sufficient to operate the mines at a profit. Efforts were made to reduce the ores by various processes, among them the old arrastra method. This process, however, was too slow and was thus abandoned, and the camp languished for several years.[108]

In 1877 placer mines were discovered in the Osceola district by John Versan. The placers, according to the state mineralogist, were located near the confluence of

two gulches which run nearly parallel with each other. One is called Dry Gulch and the other Wet Gulch, and as indicated by their names, in one is found water and in the other none. Dry Gulch has the greatest sweep from the mountain, and in it are located most of the claims. The richest diggings are found near the point where the two gulches come together. These claims have been located in twenty-acre lots, eighty rods in length by twenty rods in width. About three hundred claims in all have been located in both gulches.

---

106. *Biennial Report of the State Mineralogist of the State of Nevada For the Years 1875 and 1876*, pp. 170-71, in Appendix to Journals of Senate and Assembly, State of Nevada, 8th Session, Vol. I.

107. *Biennial Report of the State Mineralogist of the State of Nevada For the Years 1877 and 1878*, pp. 157-58, in Appendix to Journals of Senate and Assembly, State of Nevada, 9th Session.

108. E.E. Stuart, comp., *Nevada's Mineral Resources* (Carson City, State Printing Office, 1909), p. 98.

> A large nugget which weighed twenty-four pounds was found last summer in one of Mr. Versan's claims, worth about twenty-six hundred dollars.

The principal drawback to working the Osceola placers was the scarcity of water. By 1878 the only supply of water was obtained by running a tunnel into Wet Gulch, where springs yielded "about one [miner's][109] inch of water" for use in the rockers. Whenever sufficient water could be brought to Osceola for sluicing operations, the Nevada state mineralogist predicted that the "product of gold" would "be greatly increased, for many of the claims which are idle now can then be profitably worked."[110]

The mining activity in the Osceola district was described at length in an article in the *Mining and Scientific Press* of October 1878. Some 300 to 400 miners were working in the district, and a five-stamp mill had been erected in Dry Gulch. The placers covered

> an area of twenty miles square, much of the ground being cut up by deep ravines and canyons, but in the canyons are beds and bars of gravel that prospect well. Osceola, like one-half the camps in Nevada, is without water sufficient for its demands, and a placer mining district without water is like a Pioche saloon without whisky.

Meanwhile, the Osceola quartz gold ores were running "from $6 to $40 per ton." The ore was free milling and yielded an average rate "of $15 gold per ton." The Eagle Company's mill "made a run on 700 tons of ore, which yielded $10,000 worth of free gold, and then a few assays from the tailings were reported as running from $5 to $22.50." While the mill was idle at present, the company continued to employ fifteen men at the mines. The favorable climate of Osceola permitted

> the work to go on all winter, and the occasional finding of a rich nugget, has kept about 100 men "coyoting" and prospecting about with rockers and the little drippings of water, for the last six months, and this apparently insignificant work has not been thrown away, as in the time mentioned these hundred men have taken out upwards of $20,000 – all of this sum was collected by the use of the rocker and pan only.[111]

With the discovery of the rich placer deposits in 1877 the town of Osceola was established. Within a relatively short time the settlement included stores, boarding houses, a Chinese restaurant, and two stages running regularly to Ward.[112] The town continued to grow and by 1882 had a population of some 1,500. By the early 1880s, the town, which quickly became a trade center for area mining camps and ranches included the following businesses: Glascock-Marriott Store; (2) Heckethorn Store; (3) Scott Store; (4) post office (established on March 26, 1878); (5) restaurant; (6) butcher shop; (7) blacksmith shop; (8) jail; (9) assay office; and (10) three saloons. In his *History of the State of Nevada* in 1881, Myron Angel described the burgeoning town along with its mining operations and other economic activities:

---

109. In Nevada, 50 miners' inches of water equalled one cubic foot per second.

110. *Biennial Report of the State Mineralogist of the State of Nevada For the Years 1877 and 1878*, pp. 157-58, in Appendix to Journals of Senate and Assembly, State of Nevada, 9th Session.

111. "Nevada, Osceola District," *Mining and Scientific Press*, XXXVII (October 26, 1878), 268.

112. *Ward Semi-Weekly Reflex*, June 21, 1877, and Stanley W. Paher, *Nevada Ghost Towns & Mining Camps* (Berkeley, Howell-North Books, 1970), pp. 261, 263.

> There have been over 400 locations, of which there are sixty quartz and forty placer that are probably good. The principal quartz mines are the Crescent, Osceola Credit Mobilier, Cumberland, Eagle, Exchange and Silver Age. The placer mines are the Wisel, Scofield, Cumberland, Gulch and Day Gulch. The Crescent has a tunnel 500 feet long, which reached a depth of 250 feet below the surface. It also has a shaft 125 feet deep. The nearest railroad station, from which freight is brought, is Deseret, on the Utah Southern Railroad, 100 miles distant. The rate is thirty dollars per ton. Fire-wood is procured in sufficient quantity close at hand, but material for timbering the mines is brought seven or eight miles. The adjacent springs furnish a supply of water sufficient for ninety stamps. Water for hydraulics is being brought from the small streams from Wheeler's Peak, which will furnish about 100 miner's inches per day.
>
> In Osceola there is one five-stamp mill. . . . It is situated in the cañon, with abrupt mountains on the north and west, a high bluff, called Lookout Mountain, on the south, and Wheeler's Peak on the east, and has an altitude of 7,500 feet. At present the town contains two stores, one hotel, one restaurant, one livery stable, a blacksmith shop, and two other places of industry. Supplies are obtained from San Francisco, by rail, to Eureka, and thence by stage 115 miles; also from Salt Lake City, by rail, to Deseret, and thence by stage 100 miles. The mail is brought from Deseret three times a week. The buildings are constructed mostly of wood. A frame school house, 12x20, has been erected, with seating capacity of thirty. In the vicinity of the town, grazing and agriculture are engaged in with some profit, there being from twelve to fifteen persons engaged in each.[113]

During 1883 and 1884 new placer and quartz mines were discovered in the Osceola district, the gross yields for those years being about $300,000 and $250,000, respectively. In the gulches miners were averaging "2.50 to $5.00 per day," the dust and nuggets "passing for trade currency." The gold-bearing quartz belt, some 12 miles long by 7 miles wide, had 13 principal mines – Cumberland, Osceola, Crescent, Eagle, Saturday Night, Verde, Stem Winder, Gilded Age, Grandfather, Snide, Red Monster, Saturday Night, and Royal Flush.

Despite the growth in mining activities, however, an insufficient water supply continued to hamper placer operations. As a result, the miners used rockers in the placers during the summer and waited for melting winter snows "to work over the gravel more thoroughly." Accordingly, it was reported that "great interest" was being "manifested" in negotiations then underway "for a water system which will convey it by a ditch, 18 miles, from Snake Valley."[114]

The water system alluded to was a major engineering undertaking then being studied by the Osceola Gravel Mining Company, a Salt Lake City-based firm owned principally by Benjamin Hampton. Since 1877 the company had been interested in the Osceola placers, endeavoring to extract gold from its claims using hydraulic methods similar to those employed in the California gold fields. By 1884 the company had obtained through its agent, Xavier St. Pierre, some 700 aces of placer ground, nearly 500 of which were patented, in the Dry Gulch area just west of the town site. The "deep bars" on its claims were found "to contain gravel varying in value from 45 cents [to] $1.25 per cubic yard." Unusually heavy snows during the previous winter had "furnished the means of using a

---

113. Angel, ed., *History of the State of Nevada*, p. 662.

114. *Report of the Director of the Mint Upon the Production of the Precious Metals in the United States During the Calendar Year 1883* (Washington, Government Printing Office, 1884), pp. 560-61.

small hydraulic, by which they washed from various places over 10,000 cubic yards of gravel."[115]

During 1884-85 the Osceola Gravel Mining Company constructed a 16-mile ditch to convey the water of six creeks (Williams, Pine, Shingle, Raised, Spring, and Willard) on the west side of the Snake Range to their placer operations. Known as the West Ditch, the waterway, which cost some $80,000, was designed to carry between 1,000 and 1,100 miners' inches of water. Two engineers, whose names were Smith and Doremus, who had worked on surveys for the Union Pacific Railroad, had charge of the construction, and a Mr. Black of Deseret, Utah, and Judge Grover of Nephi, Utah, were the contractors, the work being supervised by James H. Marriott of the Osceola Gravel Mining Company.[116] As later described in the *Ely Mining Record* of June 8, 1907, the head of the West Ditch was

> on the western base of Mount Wheeler, sometimes called Jeff Davis Peak, where the waters from Williams creek are turned from their natural course and started in the winding ditch northward. As they follow along, the waters from Ridge, Shingle and Willard creeks are checked in their downward rush and made to mingle peacefully with each other as they slowly progress onward to where their combined quantity is used to generate the power to tear down high banks of the gold containing earth and cement, causing it to disintegrate and drop its precious contents in the riffles of the sluice boxes.[117]

During construction of the West Ditch the Osceola Gravel Mining Company employed as many as 125 to 175 men on the work at any one time.[118] Little documentation is available concerning the construction activities. In April 1885, however, one bizarre incident occurred at Cherry Creek, the result of riotous celebrating by men constructing the ditch. The *White Pine News* reported on April 18:

> A crowd of "saintly young hoodlums," lately employed on the Osceola ditch, invaded the quiet precincts of our town [Cherry Creek] Wednesday morning, and about 11 o'clock at night, having got full of poor whisky, started in "to paint her red." Chinatown was their base of operations, where they turned loose their pistols and overawed the few residents of that place. One Chinaman was hit, but not hurt. The celestials returned the fire, but we regret to say, with such poor aim that the Mormon rowdies escaped uninjured. They lit out at day break next morning to escape arrest.[119]

Although the West Ditch was completed in the spring or summer of 1885, it did not meet the needs of the Osceola placer mining operations. The *White Pine News* reported on September 12, 1885, for instance, that the Osceola hydraulic mines were "running very

---

115. *Report of the Director of the Mint Upon the Production of the Precious Metals in the United States During the Calendar Year 1884* (Washington, Government Printing Office, 1885), pp. 369-70, and *White Pine News*, January 3, 1885.

116. "Some Mines of White Pine, Ward, Taylor, Osceola and Cherry Creek Districts," *Mining and Scientific Press*, XLIX (December 20, 1884), 390.

117. *Ely Mining Record*, June 8, 1907.

118. *White Pine News*, January 31 and February 14, 1885.

119. *White Pine News*, April 18, 1885. See Appendix J for a discussion of the role of the Chinese in constructing the West and East ditches at Osceola.

slow at present on account of the scarcity of water – only averaging about two hours per day."[120]

Despite continuing water shortages the Osceola district held high promise as a major gold-producing region. In August 1886 the *Mining and Scientific Press* printed a glowing description of its possibilities for the periodical's national reading audience. According to the article, Osceola was located

> 120 miles southeast of Eureka, the terminus of the Eureka & Palisade Railroad, and 93 miles west of Frisco, the terminus of the Utah Southern Railroad. It is connected with both railroads by a good wagon road, over which the heaviest machinery can be transported at all seasons of the year. With Eureka the district has a tri-weekly connection via the White Pine Stage Co.'s coaches, carrying the U.S. mails and Wells, Fargo & Co.'s express, and with Frisco it has a semi-weekly connection via Beers' Stage Line, carrying Pacific express.
>
> The geographical situation of the district renders it a "competitive point" as between the different railroads, and freights are cheaper than to any another point in Nevada. Snake valley, 18 miles to the east, and Spring valley, lying immediately under the district, two of the most prolific valleys in the State, produce an overabundance of hay, grain and all kinds of vegetables and small fruits, which are sold at cheaper rates than the same products command in California.
>
> The geological formation is slate, quartzite and limestone, the slate lying near the base of the mountain, quartzite overlying the slate, and limestone capping the whole. The district is deeply indented by a bold gulch or ravine, which heads near the center of the mineral belt and flows thence three-fourths of a mile in a northerly direction; thence making a short curve it flows westerly for a distance of three miles and discharges into Spring valley. Along the bed and bars of this gulch and its short tributaries are immense deposits of auriferous gravel, varying in depth from 10 to 200 feet. From these gravel beds and deposits there has been taken, during the last ten years, by the most simple process (that of the common '49 rocker), over one-half million dollars in gold-dust. The gold-dust thus obtained is what might justly be termed coarse gold, the grains or nuggets varying in value from a few cents to as many thousands of dollars. One nugget found in the sand near the surface of the gulch contained over $6000, and with it is connected a very romantic history. All the grains or nuggets of gold have more or less quartz adhering to them, and this quartz is identical with that found in the ledges and veins on the hillsides above.
>
> Four miles from the above mines, on the edge of Spring valley, is an abundance of water for milling purposes by steam power. The water will have to be raised with pumps to a height of 20 feet. Wood can be obtained in abundance delivered at the mill for $3 per cord.[121]

That same year Robert Briggs, a long-time mine operator and developer in California, Nevada, and Utah, arrived at Osceola. After discovering some new gold ledges, he began

---

120. *White Pine News*, September 12, 1885.

121. "Osceola District, Nevada," *Mining and Scientific Press*, LIII (August 21, 1886), 118.

developing them and made plans to erect a mill. A biographical sketch of Briggs prepared about 1887 provides detail as to the extent of mining in the district:

> The ledges of gold bearing quartz yield from $12 to $13 a ton, giving a reasonable compensation for treatment. The ledges are from four to eight feet in width, running generally east to west, and having an inclination of 30° to the south. . . . All the ore will move to mill on a down grade, and can be carted at 75 a ton. The gold from the quartz veins is nearly 21 carats fine.[122]

Despite the completion of the West Ditch in 1885 the Osceola placer operations continued to be plagued by an inadequate water supply with which to conduct major hydraulic activities. Accordingly, the Osceola Gravel Mining Company began surveys for a ditch that would conduct water to Osceola from the east side of the Snake Range, thus supplementing the water supply produced by the West Ditch. While the initial surveys for the waterway, which would become known as the East Ditch, were conducted in 1885, the ditch would not be constructed until 1889-90.

Several articles in the *White Pine News* during the fall of 1885 attest to the fact that surveys for the East Ditch were underway. The newspaper reported on October 24, 1885:

> Parties in from Osceola tell us it is rumored there that the Osceola Gravel Mining Company has completed negotiations for the purchase of Lehman Creek. If this should prove true that company has thoroughly tested the gravel beds of that district, and the best has been so satisfactory that they see their way through in going to the great expense of bringing water from Lehman Creek. If the purchase has been made it is a hopeful sign for our neighbors across the range.[123]

It is interesting to note that a small story in the same newspaper reported that Absalom S. Lehman, the owner of a large 600-acre ranch in Snake Valley who had recently discovered what came to be known as Lehman Caves, refused to confirm or deny the sale of his water rights on Lehman Creek. The *White Pine News* observed that Lehman "made the NEWS office a call yesterday. We interviewed him on the subject of the purchase of his water rights by the Osceola Company. But he proved mum on the subject."[124]

The following week, on October 31, the *White Pine News* reported on the continuation of surveys for the East Ditch. The article stated:

> The Hydraulic Company have had their engineer (Smith) in the field, taking the levels from the creeks in Snake Valley, and has reported favorably on the feasibility of bringing in the water. He and Mr. Hampton (the Superintendent) have gone to consult with the company in regard to the matter.[125]

During 1887 the Osceola Gravel Mining Company employed George W. Maynard, a professor from New York and well-known mining engineer in the western United States, to

---

122. [Biographical Sketch of] Robert Briggs, ca. 1887, Manuscripts Division, Bancroft Library, University of California, Berkeley. The biographical sketch contains a detailed account of the principal lode mines in the Osceola district.

123. *White Pine News*, October 24, 1885.

124. Ibid.

125. Ibid., October 31, 1885.

make a detailed analysis of its properties, water problems, and financial assets. This examination would set the stage for the construction of the East Ditch in 1889. According to the *Engineering and Mining Journal* of December 3, 1887, the Maynard study described the company property and prospects as follows:

> 712 acres of gold-bearing gravel in one body, held by indisputable titles; exclusive water rights to six streams favorably situated for supplying water to wash the gravel; a ditch 16 miles long and a distributing reservoir for utilizing the water of said streams; one hundred and sixty eight acres of placer ground (auriferous gravel) on the line of the ditch, five miles from the present workings; 2560 acres of desert land below the great placer for depositing tailings. A Fraser & Chalmers 20-stamp mill of the best modern construction, which will be made available when the quartz veins above Osceola come to be worked; two ranches, covering 120 acres, of improved farming land for furnishing supplies. The ground in the great placer known to contain gold-bearing gravel is three miles long, of which 1-1/2 miles are 3000 feet wide, and the remaining upper half over 1000 feet. The developments have proven the depth of the gravel to range from 45 feet in the channel in the upper part of the gulch to 265 feet half a mile below the present workings, with every evidence of increasing depth as the valley is approached. The average depth of gravel below the present workings may with confidence be estimated at 150 feet, which means 115,500,000 cubic yards. At 15 cents a cubic yard the gross value, therefore, amounts to $17,000,000. Up to August 31st, 1886, 125,892 cubic yards had been hydraulicked at one point known as the "Big Cut," yielding $29,715, equal to 23.6 cents per cubic yard, with an average of but 356 miners' inches of water for six to eight hours a day. With water for about 100 hours this season, over 600 ounces of gold, valued at $9700, have been cleaned up from the sluice and the bed-rock. The limited supply of water is due to the exceptionally dry season and the absence of storage reservoirs. In no one of the many shafts and prospect holes sunk for exploration has the ground been barren. In the line of the deep channels the average value of the gravel has been over twenty cents to the cubic yard. The richness of the gravel, ranging from $11 to $50 per cubic yard just above and on the rock bed, brings the property into the front rank of the richest California placers.
>
> The prevalence of large nuggets is one of the most striking features of this property. Mr. Maynard has in his possession nuggets ranging in weight from 2 ounces to 72 ounces, and of an aggregate value of over $3,000, taken from the bed rock at and above the present workings – in estimating the value of the gravel he has not included the nuggets.

The article went on to elaborate about the water needs of the company and some of Maynard's recommendations for solving those problems. The existing 16-mile West Ditch, with the addition of reservoirs, could be counted on to deliver only "521 miners' inches of water per day for seven months, and the proposed ditch, 2094 inches daily for the same period, making a total of 2615 inches." This sum was "the lowest probable average based upon the last three years' experience; it would break down 10,460 cubic yards of gravel every twenty-four hours, which, at fifteen cents a cubic yard, would give a daily gross product of $1569 at a cost not to exceed $523, equivalent to a daily net profit of $1046, or $190,372 per year of seven working months as a minimum available for dividends." This figure could "be increased to $225,000 by large supplies of water from melting snows in the months of May and June." During the twelve-month period following completion of the dam and ditch, the "minimum net income of $190,000" could "be confidently assured." Maynard observed that taking the present ditch as a basis of estimate, the new ditch of 22

miles may be built for $100,000, with a margin for unexpected contingencies." With "an additional sum of $100,000 the dams and hydraulic appliances" could be supplied.[126]

In August 1889 the Osceola Gravel Mining Company was reorganized and its controlling stock sold to the Osceola Placer Mining Company, a firm that recently had been incorporated in New Jersey. The directors of the new firm were W.B. Kunhard and I.A. Harrison of New York and Benjamin Hampton of Salt Lake City. James H. Marriott was named general superintendent and had charge of day-to-day operations of the Osceola Gravel Mining Company which retained its identity.

Under the terms of the transaction nearly one half of the Osceola Gravel Mining Company's stock remained in the hands of Salt Lake City investors, but controlling interest was now in the hands of New York businessmen. The sum of $150,000 that was realized by the Osceola Gravel Mining Company on the sale of stock to the new firm was set aside "for the purpose of purchasing the water supplied by Mount Wheeler and carrying it to the placer." The new company was capitalized at $5,000,000 with 500,000 shares, of which 80,000 were "held in the treasury to meet unforeseen contingencies, or to divide when the necessity for holding has ceased."

The first undertaking of the newly-organized Osceola Gravel Mining Company was to be construction of the East Ditch. According to the *White Pine News* of August 17, 1889, it would "hustle the company to get the new ditch and reservoirs constructed in time for the melting snows of 1890, but they intend to make the best stagger at it they can by putting a thousand men on the work." After "the ditch, dams, reservoirs and hydraulic appliances" had been provided and "sundry 'giants' turned loose at a gravel bank 150 feet high with 2,600 inches of water playing, a gross output of $300,000 a year" could be expected. If no mistakes had been made in the calculations, the gravel bank would "yield at that rate for fifty years."[127]

Construction of the East Ditch commenced in September 1889. On September 14 the *White Pine News* reported that there were 200 men working on the ditch, and "the old camp" was said to be assuming a lively air."[128] One week later the newspaper stated:

> The ranchers of Spring and Snake Valleys are having a good market for their product at Osceola this year. It is expected that 1,000 men will be at work there before [the] snow flies. The company is buying up all the produce, hay and grain within reach.[129]

Lumber for the wooden flumes and bracing for a 600-foot tunnel to be drilled under the drainage divide northwest of Strawberry Creek was hauled from sawmills near Mount Moriah and in the South Fork of Big Wash and Baker Creek Canyon. In October the company advertised for "about 20 good teams" to haul lumber from the Hendrie Sawmill

---

126. "General Mining News – Nevada – White Pine County," *Engineering and Mining Journal*, XLIV (December 3, 1887), 420.

127. *White Pine News*, August 17, 1889.

128. *White Pine News*, September 14, 1889.

129. *White Pine News*, September 21, 1889.

at Mount Moriah to Lehman Creek for a cost of "$12 and $14 per thousand." At the same time, the contractors advertised for fifty "good rock men."[130]

The ditch work created a beehive of bustling activity in Snake Valley. On November 23, 1889, for instance, the *White Pine News* reported that "Bro. A.S. Lehman, of the Wonderful Cave, writes us that things are lively out his way." Several hundred men were "working on the ditch at the head of Lehman Creek," three sawmills were "running with full crews," and "all the teams in the valley" were "hauling lumber."[131]

Work on the East Ditch continued until severe snowstorms in December virtually halted construction. Flume construction, however, continued at intervals throughout the winter.[132]

The Osceola miners looked forward to the spring and summer of 1890 with enthusiasm. On February 1 the *Mining and Scientific Press* reported:

> The heavy fall of snow will give the Hydraulic M Co at Osceola a grand season. Undoubtedly they will next spring and summer wash out a vast deal of gold. . . . These placer mines will no doubt be of great assistance to the people of White Pine county, and indeed to all in the eastern part of the State.[133]

The *White Pine News* echoed this sense of anticipation on February 8:

> As soon as spring opens the Osceola Gravel Mining Company, with a full head of water, will tear up the ground at a lively rate and produce the coming season a rich golden harvest. Their operations will materially aid every industry in the eastern portion of the county.[134]

This enthusiasm, however, was somewhat dampened in early April. The newspaper warned workingmen from going to Osceola, since there were "500 men in the camp now, many of them out of work." The reason given for this problem was that the hydraulics had "not started up yet."[135]

The East Ditch was completed, and water from Lehman Creek passed through to the reservoir near Osceola's Dry Gulch on July 4, 1890. The total length of the ditch, including flumes and tunnel, was 95,133 feet, or 18 miles and 93 feet. Along its north-northwesterly course the ditch incorporated water from Lehman, Mill, Strawberry, Weaver and Sage creeks. A headgate and rock dam were installed at Stella Lake to increase its storage capacity and increase the summer flow of Lehman Creek. Total cost of the ditch's construction was $108,222.65.

---

130. *White Pine News*, October 12, 1889. The tunnel was constructed under a contract let to W.I. Aiken of Osceola. *White Pine News*, April 5, 1890.

131. *White Pine News*, November 23, 1889.

132. "Official Reports – Osceola Gravel Mining Company," *Engineering and Mining Journal*, LI (May 30, 1891), 630.

133. "Mining in 1889," *Mining and Scientific Press*, LX (February 1, 1890), 81.

134. *White Pine News*, February 8, 1890.

135. *White Pine News*, April 5, 1890.

The best and most complete description of the East Ditch and its associated components is found in the May 30, 1891, issue of the *Engineering and Mining Journal.* The article states:

> The ditch portion is 82,891 ft. in length; its dimensions 4 ft. wide in the bottom. 2-1/2 ft. deep in solid ground, with sloping sides 1/2 to 1, or an angle of 22-1/2°, and has a uniform grade of 14 ft. per mile, and a carrying capacity of over 2,500 miner's inches of water = 40,000,000 gallons per 24 hours; the excavated material being placed on the lower side increases its capacity. Its cost, as per the several contracts, was $58,307.86. The material excavated comprised 17,204 cu. yds. of gravel, including boulders and loose rock; 40,843 cu. yds. of cement, required blasting or gadding; and 23,151 cu. yds. of solid rock, all requiring blasting.
>
> Of the main flumes there are 14 sections. These are located at such places as were impracticable for ditch to be made, being on the side of the rocky and precipitous mountains, especially in the Lehman Cañon, where 3,768 ft. had to be built. The longest single section is 2,808 ft., and the shortest 96 ft. The whole length, however, aggregates 5,352 ft. The size is four ft. wide and four ft. deep, with a uniform grade of 32 ft. per mile, much of which had to be supported upon trestlework.
>
> The drop flumes or chutes, of which there are six, vary in their dimensions according to the vertical fall at their respective localities, the total length of these being 6,258 ft., with a vertical fall of 1,352 ft. The whole length of the main flumes and drop chutes is 11,610 ft., the total cost of which, including the four houses for ditch tenders, each 14 ft. x 20 ft., fitted with bunks, tables, etc., 16 waste gates, timbers for trestle, stringers, and ties, was $21,494.05. The total amount of lumber, which was yellow pine of first-class quality, used in the flumes was 316,800 ft. (board measure), in addition to 28,240 linear ft. of hewn timbers used for stringers, trestle posts, and ties, size varying from 8 to 12 inches in diameter.
>
> The route of the ditch was shortened at least two miles by the excavation of a tunnel through a projecting spur of the main mountain range. This is 632.5 ft. long, 5 ft. wide, 6.5 ft. high, and has a grade of 4 ft. in its length. It is in fairly solid granite except at the approaches, where the rock was somewhat decomposed, requiring a few sets of timbers and lagging. The total cost of excavating and timbering was $5,060.00
>
> The total cost of the east ditch was $108,222.65. Of this amount the purchase of Lehman's Creek, with ranch and improvements, absorbed $10,000; engineering expenses, $6,221.99; excavating ditch, $58,307.86; flume construction $21,494.05; tunnel, $5,060.00; and general expense account, which includes teamsters, cooks, superintendent, etc. In addition to this, and properly chargeable to the east-ditch account, was the work of cutting and draining a small lake at the head of Lehman's Cañon, putting in culvert and gate, constructing cabin, etc., which cost $949.28.
>
> At the mines the distributing reservoir was enlarged during March, 1890, by the excavation of nearly 4,000 cu. yds. of cemented gravel and rock from the interior and placing it upon the bank, thereby increasing its capacity over 50%, the cost of which, together with the new gate tower and waste gate, was $2,875. Two large-sized giants or monitors of the Hoskin-Marysville-California

patent, size No. 5, having 15-in. inlet and 8-in. nozzle butt, were added to the plant. These, with two 18-in. water gates and deflectors, cost delivered $900.00.

Eleven hundred feet of large bedrock sluice was also constructed, 60 in. wide and 35 in. deep. It is through this sluice that all the gravel from the present workings passes, consequently it was necessary that it should not only be strongly built and supported, but be absolutely tight in the bottom to prevent loss of quicksilver and gold. The bottoms are selected lumber 1-3/4 in. thick. planed, tongued, and grooved. The sides are doubled, the inner lining is 2-in. plank. Upon the bottom is placed the riffle blocks; these are square timbers 12 in. x 12 in. x 12 in. placed in rows across the bottom, and divided by a 2-in. strip, which leaves an aperture for the gold to settle in. The quantity of lumber used per linear foot, including riffle blocks, was approximately 80 ft. and cost over $3 per foot for labor and material. The total cost was $3,300.

In connection with the building of the new bedrock sluice, and chargeable to that account, there was a tunnel driven through the north of the bedrock into the deep channel, 135 ft. This tunnel greatly facilitates the working of that channel and cost $1,225. It is 8 ft. wide and 7 ft. high and is in solid quartzite.

One set of under-currents was built, being placed in connection with the sluice at a point 1,000 ft. below the head; it is 24 by 48 ft., divided into four compartments, and has a grade of 1 in 12 ft. and cost $385.00

In addition, several minor improvements were made, such as the construction of a small pipe line to furnish the water to a Pelton wheel for power purposes, new buildings, and an electric lighting plant. Two arc lights of 2,000 candle power were used, placed on the placer, enabling much more work to be done in hydraulicking on the night shift than was previously done with other kinds of lighting and at much less cost.

The article elaborated on the impact that the West and East ditches had made on Osceola placer operations to date. It noted:

From measurements taken every 12 hours, morning and evening, it appears that the volume of water passing the ditches during this period of 16 months was 147,725 miner's inches, of which 120,670 were from the west and 27,055 from the east ditches. In repairing breaks, 8,400 inches were wasted, leaving total water used in the mine 139,325 inches, the miner's inch being equivalent to approximately 16,000 gallons every 24 hours.

A cross-section made of the ground washed up to November 30th, 1890, showed that 225,876 cu. yds. had been broken from the high banks and passed through the sluices during the season. Less than half of the superficial area of the bedrock, upon which this gravel rested, had been cleaned, however. The cleaned or creviced bedrock, therefore, represents, as per engineer's estimate, that the gold from but 118,187 cu. yds. had been secured, the remainder being in the crevices of the uncleaned bedrock. This will be better understood by explaining that the bottom of the gravel banks, which average 105 ft. in height, is from 100 to 250 ft. distant from the bedrock cuts, which conduct the gravel to the sluices. These cuts vary in length, the present cut reaching 225 ft. above the entrance to the main sluice at the head of the tunnel. All the gold taken out during the past season came from the main sluice and the creviced portions of the bedrock, lying in close proximity to it. The gold lying in the upper portions of the cuts and along the foot of the high banks (100 ft.) still remains

covered with a few feet of gravel. The early frosts in November stopped all bedrock cleaning.

There is difficulty in getting skilled gravel miners in Nevada, no mining of this kind being done nearer than California. Consequently the company fell behind with bedrock cleaning, which requires experienced men to facilitate it. No larger nuggets than 7-1/2 ounces were found during the past season, but quite a quantity weighing from 1/2 to 3 ounces. The total amount of the gold extracted was $28,175; this was from 118,187 cu. yds. The estimated quantity from which the gold was washed shows an average of nearly 24 cents per cu. yd., confirming the three former seasons' averages in the same channel. Owing to the increased volume of water, the enlargement of the pipe line, hydraulic giants, and the main sluice during the past season, the duty of the miner's inch has been brought up nearer to its maximum, as is seen by comparison with former seasons' work.

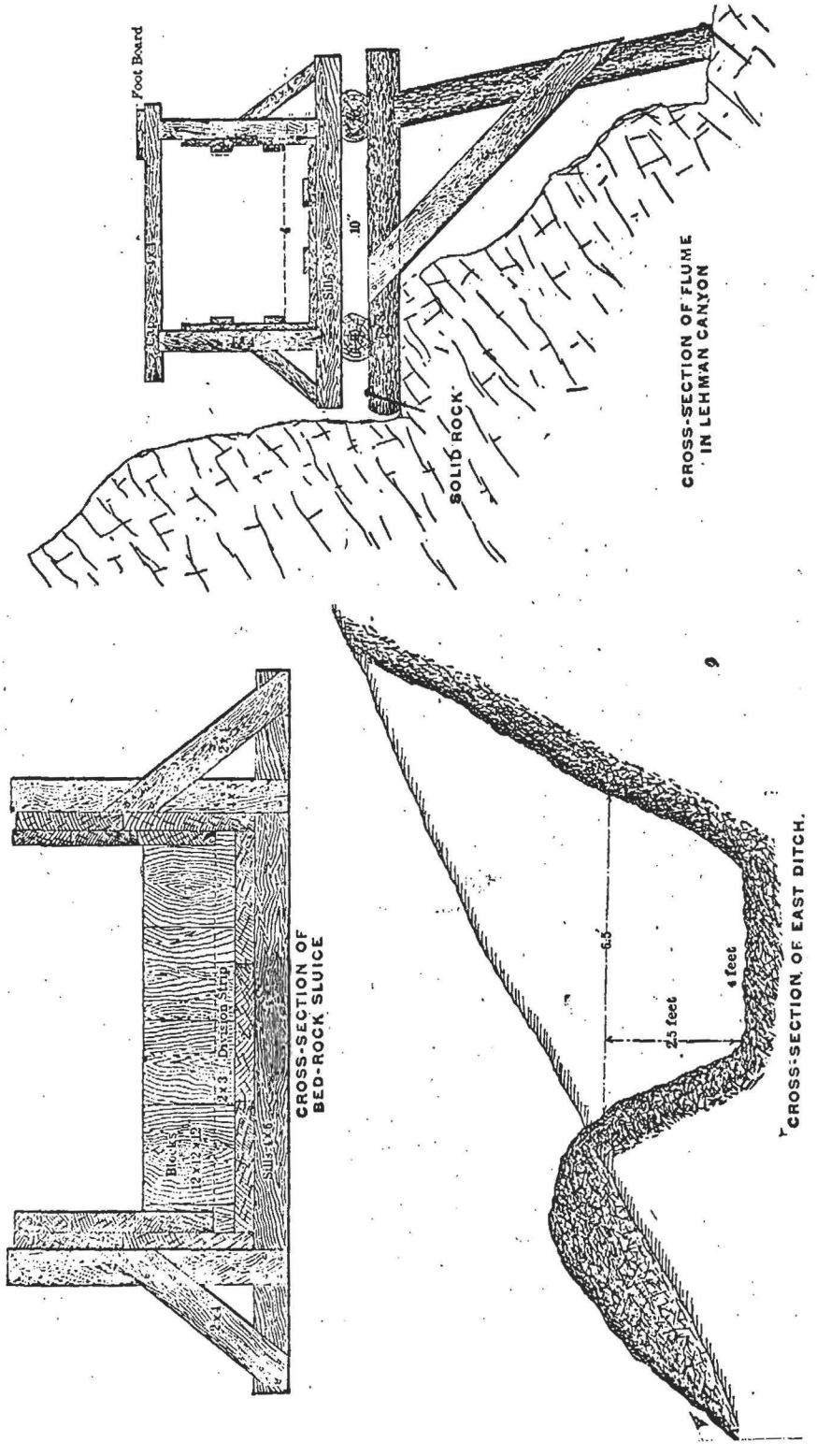
With the old sluice 32 in. x 30 in., using 1,000 to 1,100 miner's inches, the average washing was 1.1 cu. yds. to the inch of water, while during the last season through the new sluice 60 in. x 35 in., using 2,000 to 2,200 miner's inches, the average was 1.62 cu. yds. to the inch of water. It is expected to increase this to 2 cu. yds. next season, as the advantage of a larger volume of water will then be had and less stoppages on account of waiting for sufficient head in the reservoir to accumulate. It is the recurrence of these stoppages that draw so heavily upon the power, for when the water slacks in the cuts and sluices many hundred tons of gravel are left on the bottom, and it is this inert mass that must first be started before fresh gravel can be brought from the banks. The Osceola gravel, being quartz and quartzite, and very coarse, weighs approximately 3,600 pounds per cu. yd. The actual mine-labor payroll for the whole season, which includes sluice construction, was $11,450.66.[136]

In 1891 the prospects of the Osceola Gravel Mining Company's holdings as well as the prospects for the Osceola district were analyzed by the Nevada Surveyor-General and State Land Register. His comments were:

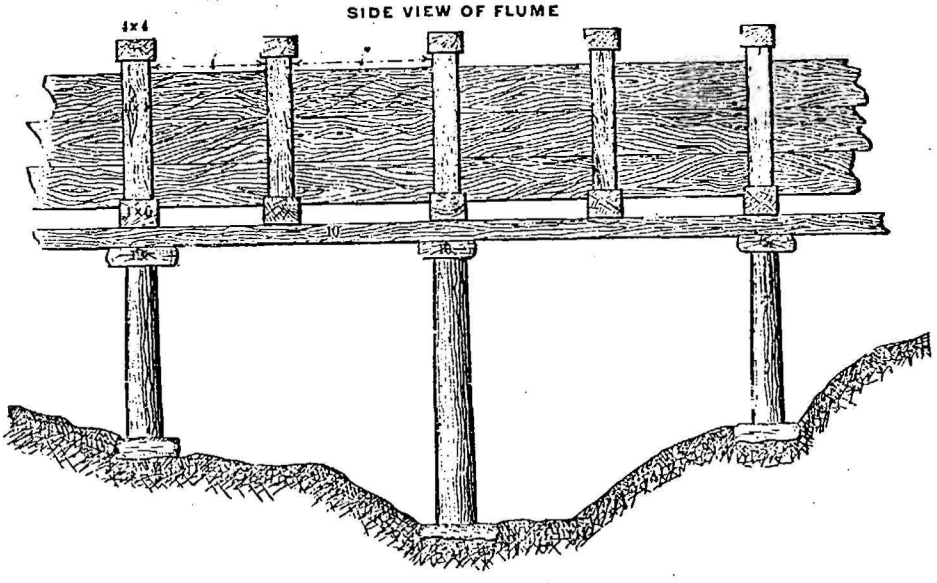
In White Pine county the Osceola Gravel Mining company own very extensive and valuable properties. This company has been operating at Osceola for several years. It has expended a large sum of money in bringing water a distance of 18-3/4 miles to its mines, and from information at hand the mines are yielding a fair profit on the capital invested. The output of this company's mines for the years 1889 and 1890 was $40,000 in value. The gold is often found in large nuggets containing more or less quartz, and is also found in very small fine pieces or scales. The new and long ditch of the company was completed too late to be of any avail this season, but a plentiful supply of water is assured for the future. About thirty-five men are employed by the company from four to six months of the year.

136. "Official Reports – Osceola Gravel Mining Company," *Engineering and Mining Journal*, LI (May 30, 1891), 630-31. Construction drawings relating to the ditch may be seen on the following pages.

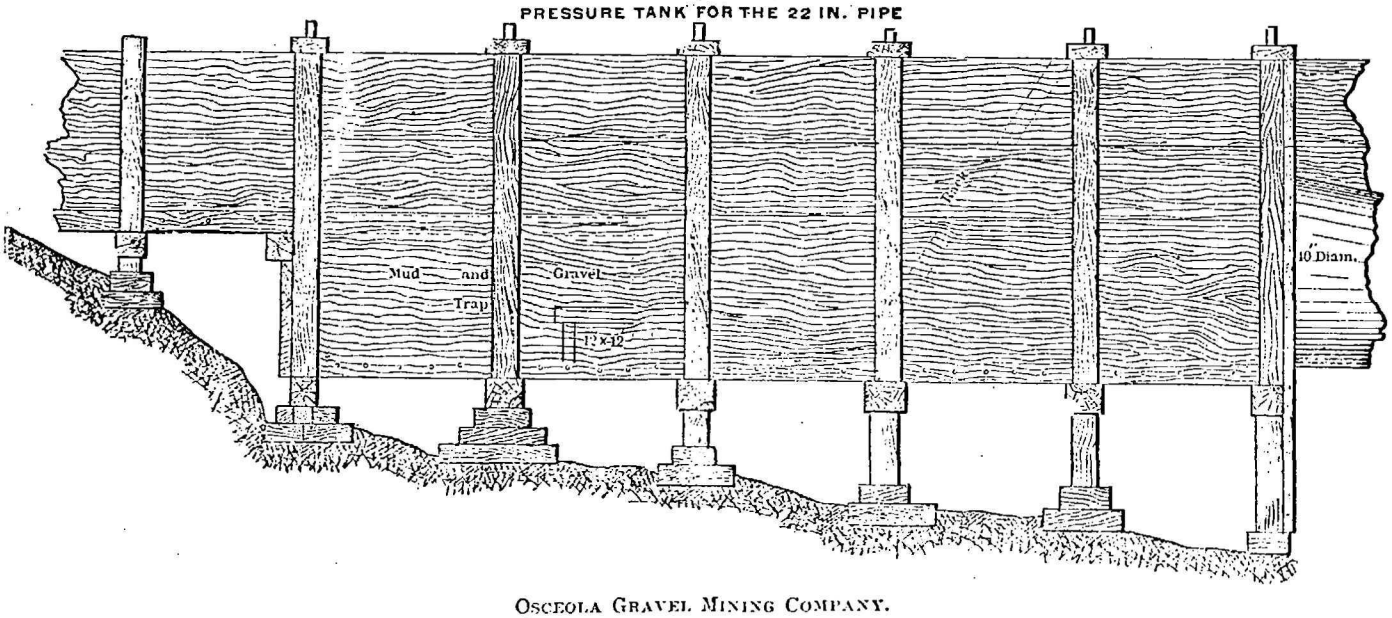
EAST DITCH CONSTRUCTION DRAWINGS



SIDE VIEW OF FLUME



PRESSURE TANK FOR THE 22 IN. PIPE



Osceola Gravel Mining Company.

> The hills above this company's mines are covered with quartz veins, showing good prospects, and would prove to be good paying mines if the owners were able to properly develop them.
>
> There are quite a number of placer mines in the district worked with rocker, sluice box and dry-wash machines that have in the years 1889-90 cleaned up a sum total of about $10,000. Almost any of the side gulches will pay from one dollar upwards per day to the man by the dry-wash process during the dry months of the year. It is certain that better times are in store for the camp of Osceola, when its quartz mines are properly looked after and developed.[137]

The first full year of placer operations at Osceola using the waters of both the East and West ditches was 1891. That year hydraulic activity was begun on May 8, using a 2,000-inch volume of water about seven hours daily. After May 20 operations commenced "full blast almost throughout the 24 hours," using a 2,000-inch volume. Later on July 11, 1891, the *Engineering and Mining Record* reported:

> Gravel is being boomed off at a much greater rate than ever before, and prospects are highly encouraging both for water and gold. The ditches hold well; no accident to either has occurred, and cost of maintaining the east ditch is very much less than anticipated. Bed rock cleaning was stopped when the full supply of water began as it takes the present small force of men to attend to both monitors, which are working most satisfactorily. Whenever the bedrock is exposed, however, nuggets are picked up. On June 17 the mine was running 24 hours with 2,500 inches (40,000,000 gallons) water, and the amount was increasing.[138]

On August 1, 1891, the *Engineering and Mining Journal* printed another article on the business prospects and placer gold production of the Osceola Gravel Mining Company. It observed:

> We learn that the Osceola preferred stockholders have increased their holdings by subscribing for an additional 33,000-shares, thus taking advantage of their right to call stock within 12 months after the completion of the 18-mile canal. The total holding in New York now amounts to 223,000 shares out of an issue of 420,000, the balance of 80,000 shares still remaining in the treasury. For over 60 days 2,500 24-hour inches have been brought into the mine, three giants being in constant use day and night. The company is still keeping its record as a nugget producer, nearly $5,000 in value having lately been picked up, one nugget weighing 53 oz.[139]

Despite the initial glowing reports of the Osceola placer operations, however, gold production did not meet the expectations of the East Ditch promoters. The gross yield of

---

137. *Report of the Surveyor-General and State Land Register of the State of Nevada For The Years 1889 and 1890*, pp. 35-36, in Appendix to Journals of Senate and Assembly, State of Nevada, 1891, 15th Session. See Appendix K for the entry of the Osceola Gravel Mining Company in White Pine County tax assessment book for 1891.

138. "General Mining News – Nevada – White Pine County," *Engineering and Mining Journal*, LII (July 11, 1891), 55.

139. "General Mining News – Nevada – White Pine County," *Engineering and Mining Journal*, LII (August 1, 1891), 133. Also see "General Mining News – Nevada – White Pine County," *Engineering and Mining Journal*, LII (January 16, 1892), 117.

the Osceola Gravel Mining Company for the years 1890 and 1891 was only $16,190.67 and $20,223, respectively.[140]

Beginning in 1892 the Osceola gold placer operations were hampered by periodic water shortages, largely the result of a mild dry winter and leaking ditch wooden flumes. In September of that year, for instance, the *Engineering and Mining Journal* reported that the gold placers were "yielding well at present," but because "of the lack of water, operations are being carried on under difficulties." But "for this drawback the placers, it is claimed, would make a rich return."[141] For a time in early 1894 the Osceola Gravel Mining Company closed down its operations[142] In July 1895 it was reported that the Osceola placer mines had resumed operations, the "two canals which supply the hydraulics are in use and 100 men are employed."[143] In August 1896, however, the *White Pine News* observed that water "for mining purposes is said to be getting so scarce in Osceola that placers will have to shut down."[144] One month later the *Engineering and Mining Journal* noted that the placers had "recently cleared up $12,030 from 24 days' work." There was "much rich gravel, but no water in that vicinity."[145]

Intermittent placer operations continued at Osceola through the 1901 season. The previous seven years had been mild dry winters, and the water supply in the ditches, depending primarily on melting snow and springs, became inadequate to meet the needs of the placers. Water theft, leaky wooden flumes, and legal battles over water rights contributed to the curtailment of placer operations. By the turn of the century it was reported that the East and West ditches combined could only provide about 100 miners' inches of water.[146]

The continuing fluctuations of the placer mines at Osceola were described by the *Engineering and Mining Journal* in 1901. The periodical reported:

> Drifting in the placers goes on steadily and dumps are accumulating for the spring waters. Several dry placer machines are in use. The water for washing is controlled by the Osceola Gravel Mining Company, which has 2 ditches from 15 to 20 miles long, bringing water from springs and streams in the Snake Mountains. Insufficient rain and snowfall for the last 7 years has prevented the company from operating its placers on an extensive scale, and water has been sold to the smaller mines.

---

140. *Report of the Director of the Mint Upon the Production of the Precious Metals in the United States During the Calendar Year 1890* (Washington, Government Printing Office, 1891), p. 161, and *Report of the Director of the Mint Upon the Production of the Precious Metals in the United States During the Calendar Year 1891* (Washington, Government Printing Office, 1892), p. 209.

141. "General Mining News – Nevada – White Pine County," *Engineering and Mining Journal*, LIV (September 24, 1892), 304.

142. "General Mining News – Nevada – White Pine County," *Engineering and Mining Journal*, LVII (February 17, 1894), 160.

143. "General Mining News – Nevada – White Pine County," *Engineering and Mining Journal*, LX (July 13, 1895), 39.

144. *White Pine News*, August 15, 1896.

145. "General Mining News – Nevada – White Pine County," *Engineering and Mining Journal*, LXII (September 19, 1896), 278.

146. *White Pine News*, May 5, 1904.

Because of the continuing water problems the Osceola placers produced only some $10,000 worth of gold in 1901.[147]

In 1906, after the Osceola placer operations had been shut down for five years, H.S. Woolley, a mining promoter from New York City, secured the holdings of the nearly defunct Osceola Placer Mining Company and secured an option for water rights on Baker Creek. Upon returning to New York, he succeeded in organizing the Nevada Amalgamated Mines and Power Company with assets of $1,000,000. The new company planned to reconstruct the West and East ditches, construct a large power plant on Baker Creek to furnish electricity for operation of the hoists and reduction works, establish three new towns, build a railroad spur from Ely to Osceola, and amass a large labor force to accomplish the work. After several years, however, the venture proved to be unsuccessful and the project never materialized.[148]

Although the Osceola Gravel Mining Company operations received most of the publicity given the district after the mid-1880s other mining endeavors continued to play a significant role in the district. While the East Ditch was being constructed in 1889, gold was discovered four miles south of Osceola and west of Windy Peak by T. Boone Tilford, James Stevens, and several partners. The men immediately staked out 200 acres of ground. When news of the discovery reached Osceola, miners rushed to the area to find that all available claims had been staked. In disgust they called the area "Hogum," because a few individuals had "hogged" all the mining property. Because of this monopoly the settlement never became large. At the peak of its activity, the camp had a population of less than 100 people, some shanties, a stone blacksmith shop, the Stevens house, and a substantial two-story log house owned by the Tilford family.

At Hogum gold was extracted largely from surface alluvial deposits, but lode mining was also conducted. In 1891, for instance, Tilford struck a rich limestone layer, now referred to as the Hogum Bar. From one twenty-acre lode operation alone, centered on the Stalwart Mine, more than $65,000 was recovered. While the Hogum area reached its peak in the 1890s, the Gold Placer Mining Company worked claims adjoining the Stalwart Mine as late as 1907, extracting "considerable gold by drifting in the bed of an ancient river."[149]

There was considerable other lode mining activity in the Osceola district during the 1890s and early 1900s. In 1891, for instance, the Osceola and Cumberland Mining Company, which had been organized by Whitney and Company of Boston, undertook new development work in each of its four mines – the Cumberland, Osceola, Royal Flush, and Revenue. Good veins of gold ore were opened in each of the properties. The pay streak in the Cumberland vein was said to be four feet wide, averaging $28 per ton in gold, and

---

147. "Osceola District, E. & M.J., 1901," File No. 335, Osceola Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

148. Read, *White Pine Lang Syne*, p. 154; *Ely Mining Record*, June 8, 1907; Weeks, "Geology and Mineral Resources of the Osceola Mining District," in U.S. Geological Survey, Bulletin 340, p. 122; and *Biennial Report of the State Engineer, 1909-1910*, p. 37, in Appendix to Journals of Senate and Assembly, State of Nevada, 1911, 25th Session, Vol. 2.

149. U.S. Geological Survey, *Mineral Resources of the United States, Calendar Year 1907, Part I – Metallic Products* (Washington, Government Printing Office, 1908), p. 383; Stella H. Day and Sebrina Ekins, comps. *Milestones of Millard: A Century of History of Millard County, 1851-1951* (Springville, Utah, Art City Publishing Company, 1951), p. 47; Read, *White Pine Lang Syne*, pp. 160, 169; and *Ely Daily Times*, August 25, 1959.

that in the Osceola three feet wide, averaging $22 per ton.[150] Later in December 1894 the Salt Lake City-based Calcutta Gold Mining Company, which owned a number of claims in the district, reported that a shaft had been driven 60 feet deep and shown "a vein of quartz carrying free gold." The prospect was "so good that development work" was "to be continued and a mill erected in the spring."[151] In April 1896 the first lead-silver lode discovery in the district was found some 1-1/2 miles south of Osceola. The small lode, containing two feet of ore, was expected to produce "60% lead, 70 oz. silver and $6 in gold."[152] The Salt Lake & Nevada Gold and Silver Mining and Milling Company was incorporated in late 1897 to exploit its Punxsutawney lode claim with mill site and water rights in the district, and immediately began exploration "by a crosscut tunnel, in 400 ft., to open three veins known to cross the property."[153] During 1899 Salt Lake City capitalists purchased and revitalized the Exchange, Crescent, and Golden Eagle mines, and Scranton, Pennsylvania, interests reopened a 20-stamp mill at Osceola which processed fifty tons of ore daily, the "material showing an average of $12 in gold per ton."[154]

In 1901 the Butterfield Gold Mining and Milling Company, a Maine-based corporation, was established. The company purchased the "old mill and millsite" of the Nevada Gold Development Company. Contracts were let to the Salt Lake Hardware Company for a new 10-stamp mill with three Cammett concentrators. The company owned five claims, some of which were "fairly well developed, showing 10 ft. thick, with an average gold content of $7."[155]

During the summer of 1904 the Pilot Knob G.M. Company of Monmouth, Oregon, began construction of "a 2-stamp battery and concentrator" on Willard Creek in the southern portion of the Osceola district. The mill was designed to test the ore in several gold-bearing quartz mines owned by the company. While the mill was under construction pack trains transported the ore from the mines to another mill some 2-1/2 miles distant. The new mill, however, was never completed.[156]

---

150. "Osceola District, E. & M.J., 1891," File No. 335, Osceola Mining District, Nevada Mining district Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

151. "General Mining News – Nevada – White Pine County," *Engineering and Mining Journal*, LVIII (December 29, 1894), 614.

152. "General Mining News – Nevada – White Pine County," *Engineering and Mining Journal*, LXI (April 25, 1896), 407.

153. "General Mining News – Nevada – White Pine County," *Engineering and Mining Journal*, LXIV (December 4, 1897), 677.

154. "Mining Summary – Nevada," *Mining and Scientific Press*, LXXVIII (February 18, 1899), 185; "Mining Summary – Nevada," *Mining and Scientific Press*, LXXVIII (May 13, 1899), 514; and "Mining Summary – Nevada," *Mining and Scientific Press*, LXXIX (July-December 1899), 97.

155. "Osceola District, E. & M.J., 1901," File No. 335, Osceola Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

156. "Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, LXXXIX (August 13, 1904), 112, and "Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, LXXXIX (October 8, 1904), 247.

Mining activity in the Osceola district came to a virtual standstill by 1905. The district, then referred to as Centennial, reported that no quartz mines were in production that year. Only one placer operation by the White Rock Gold Mining Company was active.[157]

In October 1907 Geologist F.B. Weeks conducted a general reconnaissance of the Osceola Mining District for the U.S. Geological Survey. This detailed study of the geology and mineral resources of the district provides one of the best descriptions of its mining activities during the early twentieth century.

Weeks made little mention of the East and West ditches but did comment on the drainage lines in the district. He noted:

> The principal drainage lines in the mining district are Dry Gulch and Mary Ann Canyon and along them in their alluvial fans occur the most important placer deposits. The stream beds are dry during most of the year. About one-fourth mile above Osceola, near the wagon road, are several small springs and a small stream flows from the mouth of the New Moon mine.

Weeks elaborated on the general mining conditions in the district:

> The alluvial fan which spreads out from the mouth of Mary Ann Canyon, in the southern part of the district, is locally known as Hogum. Here pay gravel was found several years after the discoveries in Dry Gulch and the deposits have been worked intermittently since that time.
>
> Several attempts have been made to work the gold-quartz properties on a small scale. Three mills of 5, 10, and 20 stamps have been erected and operated, but none of them has been commercially successful. It is admitted that more than 50 per cent of the values went down the gulch with the tailings. Since field work was completed the 20-stamp mill has been partly repaired and a run of several hundred tons of ore from the Cumberland mine has been made.
>
> From all accounts that have been obtained, it seems safe to estimate that the production of gold from this district approximates $2,000,000, of which about one-tenth was probably derived from the quartz mines.
>
> The slopes being steep, underground development is through tunnels, there being not more than half a dozen shafts in the district. In one or two mines an upper and lower tunnel have been connected by winzes. The quartzite is exceedingly hard and no timbering is required in the tunnels. In winzes and stopes a few stulls are all that is needed.
>
> Some ore has been sacked and shipped to the smelters, but the greater part has been locally milled. Stamping and amalgamation constitute the principal method of treating the gold quartz. A small cyanide plant was constructed several years ago but was abandoned, apparently before receiving a satisfactory trial.
>
> The Boston and Nevada Mining and Milling Company employs half a dozen men and about the same number are engaged from time to time in doing assessment work for nonresidents. The average wage for miners is $3.50 per day of eight hours.

---

157. U.S. Geological Survey, *Mineral Resources of the United States, Calendar Year 1905* (Washington, Government Printing Office, 1906), p. 274.

> All the mines and placers have been located by prospectors and working miners. No extensive consolidations have been made and the camp remains an aggregate of small mines and prospects on which, with the possible exception of the Osceola placers, but little outside money has been expended. The ores so far discovered have not been of high enough grade to attract lessees.

Weeks concluded his study of the district by noting that its lode deposits were known to be extensive. All of them carried gold, but their "values" were irregularly distributed "along the fissure zones." Systematic and extensive prospecting was needed to determine the average value of the lodes. According to Weeks, the average product of the lodes appeared certain to be "a low-grade ore which must be worked at a small cost and in large quantity to be profitable." As many other analysts of the district had concluded, Weeks stressed the water needs of Osceola:

> Water for milling purposes and placer mining can be obtained from the several creeks heading around Wheeler Peak, which are also available for the generation of electricity. As it will require the waters of all these creeks to fully develop the resources of the district there should be such a combination of interests as would permit the development of the water and power for the use of the various mining companies. Future development and prosperity depend on a concentration of local interests on a basis that will attract capital.[158]

During 1908 the total output of the Osceola district was valued at $5,137, of which the placers produced $4,073 in gold and $19 in silver. Only 143 tons of ore were produced from lode mines, yielding $1,041 in gold and $4 in silver. The quartz producers were the Boston Nevada Mining Company, the Black and Weeks mines, and the Pilot Knob Mining and Milling Company, the latter having a small prospecting mill with a concentrator. The placers were all drift mines operated by the Gold Bar Placer Mining Company, Osceola Company, Blue Gravel Placer Company, and Osceola Leasing Company. The Boston Nevada, which owned 160 acres of placer ground (Golden Ledge Placer Mine) at Hogum, contracted with Thomas Rockhill for a 100-foot shaft to prospect some of the rich placer deposits such as had been found "in the zone near the mouth of Mary Ann Canyon."[159]

During the winter of 1908-09 the Amalgamated Nevada Mines Company, owned by James H. Marriott, leased its placer holdings on Dry Creek at Osceola to miners. The men tunneled and drifted "in the gravel beds all winter, piling up placer dirt to be washed with the freshet of water that comes with spring weather." In April 1909 the company employed "a few men on Baker creek, laying a pipe-line to carry water to operate an electric generator."[160]

---

158. Weeks, "Geology and Mineral Resources of the Osceola Mining District," U.S. Geological Survey, Bulletin 340, pp. 117-33.

159. U.S. Geological Survey, *Mineral Resources of the United States, Calendar Year 1908, Part I – Metallic Products* (Washington, Government Printing Office, 1909), p. 505; "General Mining News – Nevada – White Pine County," *Mining and Scientific Press*, XCVII (July 4, 1908), 9; "General Mining News – Nevada – White Pine County," *Mining and Scientific Press*, XCVII (July 11, 1908), 38; and "General Mining News – Nevada – White Pine County," *Mining and Scientific Press*, XCVII (August 1, 1908), 141.

160. "General Mining News – Nevada – White Pine County," *Mining and Scientific Press*, XCVIII (April 17, 1909), 539.

The total yield of the Osceola district in 1909 was $5,977 in gold and $44 in silver, the product of two lode and four placer mines. Several tons of ore were treated in an "arrastre" at the Black Horse Mine, and ore from the Gem group was treated in a 5-stamp amalgamation mill.[161]

During the summer of 1910 the Amalgamated Mines Company installed a new mill near Osceola. The mill was constructed under the supervision of R.L. Coulthard, a millwright for the Taylor Engineering Company that had the contract for the erection of the mill.[162]

During 1912 the Osceola district produced 233.42 ounces of gold, 104 ounces of silver, and 3 tons of concentrates, containing gold and a small quantity of lead and copper. These totals resulted from treatment of 332 tons of ore at gold and silver mills, one of which had been recently constructed by the Boston-Nevada Company.[163]

In the Pilot Knob area scheelite claims were located in late 1915 by A.D. Meyers, William J. Stewart, K.C. Davis, and Charles Gaby of Ely. The Independent Tungsten Mining Company was organized by Duncan MacVichie, W. Armstrong, and T. Giles of Salt Lake City to work the claims during the winter.[164] By April 1916 a mining camp was established on Willard Creek, and plans were laid to construct a mill "as soon as the condition of the roads" permitted transportation.[165]

In May 1916 the *Mining and Scientific Press* reported that the Independent Tungsten Company was employing "about 50 men on development and construction on a 30-ton mill" at the Pea Ridge Mine. A large compressor-plant was being installed at No. 1 adit for machine-drills." The mine had "a strong shoot of scheelite in a number of places." The company promised to "become one of the most important producers along the range."[166]

With the decline in price and market for tungsten, mining activity for that commodity decreased quickly. In June it was reported that the mill had been started and made a short run, but it did not have "sufficient power for the crusher and elevators."[167] By August the company had closed its $40,000 mill indefinitely.[168]

---

161. U.S. Geological Survey, *Mineral Resources of the United States, Calendar Year 1909, Part I – Metals* (Washington, Government Printing Office, 1911), p. 430, and Stuart, *Nevada's Mineral Resources*, pp. 99-100.

162. "Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CI (August 20, 1910), 255-56.

163. U.S. Geological Survey, *Mineral Resources of the United States, Calendar Year 1912, Part I – Metals* (Washington, Government Printing Office, 1913), pp. 816-17.

164. "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXI (December 11, 1915), 908.

165. "Review of Mining – Ely, Nevada," *Mining and Scientific Press*, CXII (April 1, 1916), 485.

166. "Review of Mining – Ely, Nevada," *Mining and Scientific Press*, CXII (May 20, 1916), 762.

167. "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXII (June 24, 1916), 958.

168. "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXIII (August 12, 1916), 253.

During World War I phosphate or bat guano was discovered in the Osceola district. About 1917 this commodity was discovered at Rose Cave, more popularly known as Bat Cave, on the west slope of the Snake Range. Some nine years later in 1926 a 170-foot tunnel was driven from the hillside below the natural opening into the lowest part of the cave to extract the guano.[169]

Small quantities of gold and silver ore were mined and milled at Osceola between 1915 and 1920, but no major operations were undertaken.[170] In July 1920 it was reported that Clyde Tilford and his brother found "some good-sized nuggets" while "placer mining at the old camp of Osceola."[171] That same month four "feet of silver-lead ore of commercial grade" was discovered "in a crosscut from the main working shaft" of the Lucky Boy Mining Company near Osceola, and development was begun with a shaft and 350-foot tunnel.[172] Several tons of ore were milled from the Sunrise group of claims that produced "bullion by amalgamation."[173]

Mining activity increased in the Osceola district during 1921. In February it was reported that "gold ore assaying from $50 to $60 has been found on the Crescent claims" and was being worked by James and Jack Merritt. The ore was opened in a winze from the main tunnel.[174] In November Baird & Tilford Bros. shipped a "bar of gold bullion resulting from the milling of a small lot of $80 to $90 ore," the ore coming from an adit that had "followed the vein for 240 ft." The ten-stamp Marriott Mill was treating "ore averaging $40 per ton in gold."[175] All told, the district treated 113 tons of ore in 1921, "producing gold bullion which contained a little silver."[176]

During the remainder of the 1920s the Osceola district produced varying amounts of gold and silver. In 1922 it was reported that a "large quantity of gold bullion" was recovered from ore mined from the Sunrise group, and a two-stamp mill was operating on the property. Placer output for the year consisted "of bullion from the Dry Gulch and Fifth Decade properties and small lots from operators of unknown claims."[177] The following year placer mines operated by the Tilford brothers "resulted in the production of bullion having

---

169. Church, *Mining Districts and Mineral Resources of Nevada*, p. 253, and Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 61.

170. See, for instance, U.S. Geological Survey, *Mineral Resources of the United States, 1915, Part I – Metals* (Washington, Government Printing Office, 1917), p. 653, and U. S. Geological Survey, *Mineral Resources of the United States, 1918, Part I – Metals* (Washington, Government Printing Office, 1921), p. 260.

171. "News By Mining Districts – Nevada," *Engineering and Mining Journal*, CX (July 24, 1920), 186.

172. "News By Mining District – Nevada," *Engineering and Mining Journal*, CX (July 31, 1920), 235, and Walter Harvey Weed, *International Edition, The Mines Handbook* (Tuckahoe, New York, The Mines Handbook Company, 1922), p. 1,244.

173. U.S. Geological Survey, *Mineral Resources of the United States, 1920, Part I – Metals* (Washington, Government Printing Office, 1922), p. 336.

174. "The Mining Summary – Nevada," *Mining and Scientific Press*, CXXII (February 26, 1921), 305.

175. "Review of Mining – Nevada," *Mining and Scientific Press*, CXXIII (November 19, 1921), 717.

176. U.S. Geological Survey, *Mineral Resources of the United States, 1921, Part I – Metals* (Washington, Government Printing Office, 1924), p. 396.

177. U.S. Geological Survey, *Mineral Resources of the United States, 1922, Part I – Metals* (Washington, Government Printing Office, 1925), p. 338, and *Ely Daily Times*, May 5, 1922.

a fineness of 0.85 in gold and .145 in silver."[178] Little production was reported in 1924 and 1925, the placers yielding a mere $395 in gold and silver during the latter year.[179] In 1926 the Woodman Mining Company, which owned a five-stamp mill, conducted "1,000 feet of development," and at a tunnel was driven 875 feet at the American property."[180]

Mining activity increased in the Osceola district during 1928. A ten-stamp Straub mill, equipped for amalgamation and treatment of eight tons of ore a day, was operated at the Lassie Jean Mine by the Nickolson Mining & Milling Company. The gold mine consisted of "an inclined shaft sunk 130 feet on a vein dipping about 45°." Placer mining operations were conducted on the Hard Pickings and Osceola Fraction claims. The Osceola Fraction, on the "west side of Mount Wheeler," was worked "by drifting and dry washing or by sluicing when there was enough water." The method of reaching the gravel was "by shaft sunk 30 or 40 feet to bedrock." The gravel was hoisted by gasoline engine, and the waste rock was removed "by a combination of blower and riffles." The material caught in the riffles was panned.[181] In 1929 the Nickolson Mining & Milling Company treated 38 tons of free gold ore from the Woodman Mine in its amalgamation mill, producing gold and silver bullion amounting to $2,195.[182]

Desultory mining operations continued in the Osceola district during the early 1930s. Five placers and one lode mine in the district produced gold and silver bullion valued at $6,302 in 1930.[183] The following year five placer operations and two lode mines in the district "reported 18 tons of ore, $6,604 in gold, and 67 ounces of silver, valued together at $6,623."[184] In 1932 three lode and seven placer mines produced 674.92 ounces of gold and 190 ounces of silver for a total value of $14,006 ($10,467 from placers).[185]

During 1932 the U.S. Bureau of Mines sent a field team through the Nevada mining areas to assess their condition. At Bald Mountain the team met a group of five placer prospectors from Ely who had lost their jobs when the copper mines closed. The miners stated

> that about 100 men were now placer mining at Osceola. Some are working on the west side, others on the east side of the mountain. Water is plentiful, and

---

178. U.S. Geological Survey, *Mineral Resources of the Unites States, 1923* (Washington, Government Printing Office, 1927), p. 512.

179. U.S. Geological Survey, *Mineral Resources of the United States, 1925, Part I – Metals* (Washington, Government Printing Office, 1928), p. 696, and *Ely Record*, May 2, June 13, 1924.

180. U.S. Geological Survey, *Mineral Resources of the United States, 1926, Part I – Metals* (Washington, Government Printing Office, 1929), p. 555.

181. U.S. Geological Survey, *Mineral Resources of the United States, 1928, Part I – Metals* (Washington, Government Printing Office, 1931), p. 475.

182. U.S. Geological Survey, *Mineral Resources of the United States, 1929, Part I – Metals*, p. 670.

183. U.S. Geological Survey, *Mineral Resources of the United States, 1930, Part I – Metals* (Washington, Government Printing Office, 1933), pp. 551-52.

184. U.S. Geological Survey, *Mineral Resources of the United States, 1931, Part I – Metals* (Washington, Government Printing Office, 1934), p. 630.

185. U.S. Bureau of Mines, *Minerals Yearbook, 1932-33* (Washington, Government Printing Office, 1933), pp. 133-34, and U.S. Bureau of Mines, *Statistical Appendix to Minerals Yearbook, 1932-33* (Washington, Government Printing Office, 1934), p. 249.

> sluice boxes are used. Fairly good results are obtained, the men average from $1.00 to $5.00 per day in recovered gold. A royalty of as much as 50 per cent is said to be exacted by some of the claim owners, which probably deters more men from entering the district.[186]

Two of the placer operations that were worked in 1932 were the Weaver Creek and Summit Diggings areas. An attempt was made to work the gravels adjacent to Weaver Creek by sluicing. The gravel was excavated and transported to the sluice by a small dragline scraper. Operations were hampered, however, by large boulders and water on the bedrock and legal battles with ranchers below the placers over water rights. Considerable excitement was created by reports of placer gold discoveries at the Summit Diggings near the crest of the divide several miles above Osceola, but after a short period of prospecting, it "was found that the ground did not come up to expectations, and the diggings were abandoned."[187] As a result of the continuing nationwide depression, however, the total value of gold and silver production in the district soon declined to $6,778 in 1933 and $8,440 in 1934.[188]

With an increase in the price of gold mining activity for that commodity increased throughout Nevada during 1935. Water shortages, however, continued to plague the Osceola district, and the yield from placers was small.[189] The Osceola Gold Mining Corporation engaged in considerable sampling, prospecting, and development work, including the installation of a power shovel on its placer ground. The company's holdings consisted of the consolidation of nineteen separate placer claims on some 4,000 acres north of Hogum. Despite the development work, however, no ore was produced.[190]

During 1934-35 the Hampton Placer Mine, covering 417.74 acres of patented ground in Dry Gulch and owned by W.N. Bowen, was bonded to the Wagner Gold Placer Company. Edgar R. Wagner of Las Vegas, Nevada, was the principal stockholder of the firm. A gravel treatment plant costing $11,000 was built for the operation. The work at the Hampton Placer was described by U.S. Bureau of Mines Engineer William O. Vanderburg:

> The old workings in the upper portion of Dry Gulch was sampled by taking 174 cubic yards of gravel in 1-cubic-foot lots from several of the old shafts on the property. These samples ranged from 17 cents to $8.77 per cubic yard from surface to bedrock and averaged $1.32 per cubic yard. The shafts sampled ranged from 7 to 54 feet deep. The average depth of 124 holes was 26-1/2 feet to bedrock. Sampling by drilling at Osceola is impracticable, as the quartzite boulders in the alluvium carry values in free gold up to $1.20 per ton and this gold would vitiate drill samples.

---

186. "N. Nevada Field Trip (1932), A.M. Smith & C. Stoddard," File No. 335, Osceola Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

187. William O. Vanderburg, "Placer Mining In Nevada," *University of Nevada Bulletin*, XXX (May 15, 1936), 172.

188. U.S. Bureau of Mines, *Statistical Appendix to Minerals Yearbook, 1934* (Washington, Government Printing Office, 1935), p. 24, and U.S. Bureau of Mines, *Statistical Appendix to Minerals Yearbook, 1935* (Washington, Government Printing Office, 1936), p. 112.

189. U.S. Bureau of Mines, *Minerals Yearbook, 1935*, p. 272.

190. U.S. Bureau of Mines, *Minerals Yearbook, 1936* (Washington, Government Printing Office, 1936), p. 310.

The gravel plant consists of two dragline scrapers, each driven by a 75-hp. Waukesha gasoline engine, and a washing plant made by the Pioneer Gravel Equipment Manufacturing Company of Milwaukee, Wis.

The gravel is hauled to the washing plant by one of the dragline outfits and is discharged into a hopper below the surface of the ground. Above the hopper is a grizzly made of 5/8 x 3-inch strap iron with 3-inch openings. From the hopper, the gravel is fed to an inclined conveyer belt 24 inches wide and 70 feet long, which discharges into the trommel. The trommel is 42 inches in diameter, 16 feet long, and is equipped with a punched-plate screen having 5/8- and 1-inch holes. Oversize from the trommel is discharged into a 21-cubic-yard steel bin below, and from the bin it is discharged over a slide to the side of the machine. From the side of the machine the oversize is transported by the other dragline scraper to the waste dump on the side of the hill.

The trommel undersize, constituting about 50 percent of the material mined, is discharged by gravity to a sluice box 50 feet long, 2 feet wide, 10 inches deep and sloping 1-1/2 inches per foot. Riffles in the sluice are made of 1 x 3-inch boards spaced 3 inches apart and built in 5-foot sections.

The management states that the plant operated a few weeks in 1935 and during this period treated some 3,000 cubic yards of gravel averaging 69-1/2 cents per cubic yard. The gravel treated consisted mainly of tailings from former operations. The plant closed in October for the winter because of water shortage.[191]

While work was proceeding on the Hampton Placer some 25 men were working other placer deposits in the Osceola district by small-scale hand methods. Most of these were working in the Hogum area on ground owned by T. Boone Tilford. Royalty payments on Tilford ground varied from 25 to 35 percent of the gross returns. According to Vanderburg, the pay gravel was "removed by drift mining and hoisted either by hand windlasses or small power hoists." When water was available in the spring the gravel was sluiced, and during the summer months hand-powered dry washers were generally used to recover the gold. The gravel sometimes had to be dried before it could be treated using the dry washing method. Sheet iron stoves placed on rocks were employed for this purpose, and sagebrush was used for fuel.

One of the principal miners in the Hogum area during this period was William Trent. He recovered $7,500 in gold with a G.B. portable placer machine. The machine handled about two cubic yards per hour with a water consumption of seventy gallons per cubic yard. Water for placering "was pumped to the ground through two miles of 2-inch pipeline with a Gould triplex pump, size 4 by six inches, belt driven by a 12-hp. Fairbanks-Morse gasoline engine."[192]

Mining operations in the Osceola district expanded considerably in 1936 and the years following. In November 1936, for instance, the *Engineering and Mining Journal* reported that "lode and placer mines of the Osceola district" were "again becoming centers of activity." Eastern Nevada Mines, Ltd., an association of three men, was providing "equipment to mine and ship high-grade gold ore from a wide zone of shattered, gold-bearing quartzite exposed along the crest of a ridge above the placer area." A power

191. Vanderburg, "Placer Mining in Nevada," 169-70.

192. Ibid.

shovel was in operation.[193] That year the district produced gold and silver and small amounts of lead and copper valued at $43,209.[194]

After decline in the total value of gold and silver production to $33,412 in 1937, mining activity in the Osceola district resumed with vigor.[195] In 1938 more than $109,000 in gold and silver was produced, the Nevada Tex Mining Company being the major lode producer from its Gilded Age and Woodman mines and the Placers Recovery Company, operator of the Hampton hydraulic mine, the leading producer of placer gold.[196] In 1939 twelve lode and three placer mines produced $222,869 worth of gold and silver, the principal lode producers being the Gilded Age, Golden Eagle, and Lassie Jean mines. The Venture Gold Syndicate constructed a 15-ton amalgamation-concentration mill at the latter mine during the year, and the Placers Recovery Company "hydraulicked gravel" at the Ghost Walk and Transit mines.[197] The peak year of production in the district was 1940 when thirteen lode and three placer mines produced 7,012 ounces of gold, 5,573 ounces of silver, and 1,500 pounds of lead valued at $249,458, the principal mines being the Gilded Age, Golden Eagle, and Sunshine.[198] Thereafter, the value of production for the district declined to $ 206,308 in 1941 and $120,262 in 1942.[199]

Gold mining operations were largely terminated at Osceola in October 1942 when the War Production Board issued Gold Mining Limitation Order L-208 closing down all "non-essential" gold mines to provide more manpower and equipment for the war effort. Thus, with the exception of some tungsten ore mining at the Dirty Shirt, activity in the Osceola district remained idle until 1945 when three lode (the Gilded Age being the principal one) and one placer mine produced 633 ounces of gold, 256 ounces of silver, and 6,000 pounds of lead for a total value of $22,853.[200]

The aforementioned tungsten mining operations were conducted on the Dirty Shirt property three miles south of Osceola during the early part of World War II. The tungsten deposits had been located by Don Beck in 1927, and J.R. Henry of Ely recognized the "heavy spar"

---

193. "News of the Industry – Nevada," *Engineering and Mining Journal*, CXXXVII (November, 1936), 582.

194. U.S. Bureau of Mines, *Minerals Yearbook, 1936* (Washington, Government Printing Office, 1938), p. 372.

195. Ibid., p. 376.

196. U.S. Bureau of Mines, *Minerals Yearbook, 1939* (Washington, Government Printing Office, 1939), pp. 402, 413. The Gilded Age and Woodman mines were technically in the nearby Sacramento Mining District, but their production totals were figured in with those of the Osceola district.

197. U.S. Bureau of Mines, *Minerals Yearbook, 1940* (Washington, Government Printing Office, 1940), pp. 384, 395.

198. U.S. Bureau of Mines, *Minerals Yearbook, Review of 1940* (Washington, Government Printing Office, 1941), pp. 393, 401.

199. U.S. Bureau of Mines, *Minerals Yearbook, 1941* (Washington, Government Printing Office, 1943), p. 403 and U.S. Bureau of Mines, *Minerals Yearbook, 1942* (Washington, Government Printing Office, 1943), p. 429.

200. U.S. Bureau of Mines, *Minerals Yearbook, 1945* (Washington, Government Printing Office, 1947), pp. 415, 420. Fire destroyed the entire town of Osceola in 1943 with the exception of the Marriott general store and home. Some sources state the fire occurred in 1948. *Ely Record*, March 10, 1950; Nell Murbarger, *Ghosts of the Glory Trail* (Palm Desert, California, Desert Magazine Press, 1956), p. 160; and Barry A. Price, "An Evaluation of Lower Osceola Historic Site (26 WP 1674), White Pine County, Nevada," Prepared for Bureau of Land Management, Ely District, Under Contract No. NV 040-CT5-001, August 1985, p. 13.

as scheelite the following year and acquired the property. During 1929-33 the claims were controlled through bond and lease by J. Benjamin Parker who mined and milled about five tons of high grade scheelite concentrate. During 1941-42 production amounted to 90 units of tungstic trioxide from 82 tons of ore, and in 1943-43 thirty units of tungstic trioxide were produced from 15 tons.[201]

Gold production in the Osceola district fluctuated during the post-World War II years. In 1946 the Gilded Age Mine, operated by the Gilded Age Mining Company, became the ninth-leading gold producing mine in Nevada.[202] The following year three mines in the district produced $11,126 worth of gold, silver, copper, and lead. The Gilded Age was the principal mine, producing 485 tons of gold ore containing 281 ounces of gold and 135 ounces of silver.[203] One lode and two placer mines produced $46,336 worth of gold and silver in 1948, virtually all of which was mined in the Gilded Age.[204]

Total production values in the Osceola district declined to $28,989 in 1949 and $25,720 in 1950. During the latter year R.H. States & Hazel Green worked the Mary Ann placer drift mine, washing 110 cubic yards of gravel that yielded 35 ounces of gold and 6 ounces of silver. The Graham Development Corporation shipped 518 tons of ore containing 584 ounces of gold and 257 ounces of silver to a smelter from the Golden Eagle claim.[205]

After several years of relative inactivity, mining operations in the Osceola district increased during 1954. The U.S. Bureau of Mines reported on these activities:

> Hemet Milling & Processing Co. shipped dump material from the Gilded Age mine to the McGill Smelter for flux. The material contained some gold and silver. Edward V. Abott worked gravels from the Gold Nugget and North Star by drifting, and produced gold and silver. Mrs. Bonita Tilford worked the Three Sisters tungsten placer and shipped concentrate to an ore buyer. L.T. Tilford shipped a small quantity of tungsten ore from the Shipper underground mine to a custom mill, and R.D. Tilford developed tungsten ore at the Big Foot claim in 1954.

Most of the tungsten ores from the Osceola and nearby Sacramento and Black Horse districts were milled at Goody's Mill several miles east of Sacramento Pass.[206]

In 1958 a survey of the Osceola district by the U.S. Bureau of Mines found no active mines. There were, however, 239 placer claims recorded in the White Pine County Courthouse, of which 14 were on Lehman Creek and 20 on Weaver Creek. There were four principal mines in the district:

---

201. Milton Benjamin Parker, "The Dirty Shirt Group of Scheelite Mining Claims," ca. 1933, and. "Dirty Shirt," USBM Unpubl. Data 1963, File No. 335, Osceola Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

202. U.S. Bureau of Mines, *Minerals Yearbook, 1946*, pp. 1,476 and 1,493.

203. U.S. Bureau of Mines, *Minerals Yearbook, 1947*, pp. 1,470 and 1,475.

204. U.S. Bureau of Mines, *Minerals Yearbook, 1948*, pp. 1,559 and 1,564.

205. U.S. Bureau of Mines, *Minerals Yearbook, 1949*, p. 1,532, and U.S. Bureau of Mines, *Minerals Yearbook, 1950*, p. 1,549 and 1,554.

206. U.S. Bureau of Mines, *Minerals Yearbook, 1954, Volume III, Area Reports*, p. 706.

Gilded Age Mine

This gold mine is located in sec. 13., T. 14 N., R. 67 E. It is developed by two shafts 300 and 800 feet deep with levels at 300, 600, 700, 800 feet. Underground openings, drifts, raises, and winzes total 15,000 feet.

Dirty Shirt Mine

This tungsten mine is located in secs. 23, 24, 25, T. 14 N., R. 67 E. Developed by 96 foot inclined shaft, small stamps and a 500 feet adit at a lower level.

Skipper Tungsten Mine

Located in sec. 19, T. 14 N., R. 68 E., on the west side of Ohio canyon which is a tributary to Willard canyon. Developed by two adits 30 feet and 130 feet long and two shafts 20 and 50 feet deep.

Cumberland Gold Mine

Sampling and evaluating of placer gold in this mine was conducted in 1958. The placers are in Mary Ann Canyon sec. 24, T. 14 N., R. 67 E.

The bureau concluded that reserves in the lode mines were depleted, and sparse placer grounds remained. It was thought doubtful that the gold producing areas would again come into production.[207]

According to a study prepared by the Nevada Bureau of Mines and Geology in 1976, the Osceola district produced a total value of $3,342,610 from its placer and lode mines between 1872 and 1959. Of this total, nearly $2,000,000 was produced prior to 1901. A copy of recorded production for the district as noted in the study may be seen on the following page.[208]

207. "Report on the Investigations of Mineralization In and Adjacent to the Humboldt National Forest, Mt. Wheeler Area," November 5, 1958, pp. 2-3.

208. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, pp. 61-62. Also see "Nevada's Metal and Mineral Production," by Couch and Carpenter, pp. 148, 151-52.

Osceola Mining District, Summary Of Recorded Production Through 1959.

[0, none; *, estimated, partly estimated, or computed; blank, figures not available]

Productive years	Ore, old tailings old or treated[1] (short tons)	Total value when sold[1] $	Gold (ounces)	Silver (ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)	Tungsten (short ton units)	Guano
				LODE[2]					
1872-1901		197,177*	9,470*		0	0	0	0	0
1902-1959	54,500*	1,221,634*	32,102	119,161	1,344	112,422	11,832	550	0
Totals		1,418,811*	41,572	120,161	1,344	112,422	11,832	550	0
				PLACER (Johnson, 1972)					
1877-1901		1,774,595*	85,500*	9,000*	0	0	0	0	0
1902-1923			3,253	290*	0	0	0	0	
1934-1942		149,204*	3,125	200*	0	0	0	0	
1943-1959			215		0	0	0	0	
Totals		1,923,799*	92,093*	9,490*	0	0	0	Few	
Totals									
Lode and Placer[2]		3,342,610*	133,665*	129,651*	1,344	112,422	11,832	>559	

[1] Excluding tungsten, guano.
[2] Including Woodman (Eagle) and Gilded Age mines in the Sacramento district.

In recent years small-scale placer operations have been conducted in the Osceola district. During a mineral investigation of the area by the U.S. Bureau of Mines in 1981 it was noted that placer gold was being mined on Weaver Creek. A large backhoe and bulldozer were being used to feed a trommel, and several combinations of screens and riffles were being treated.[209]

In November 1983 the *Intermountain Pay Dirt* reported that Continental Gold, Inc., a unit of the Tucson-based Continental Materials Corporation, expected "to produce about 3,000 ounces of gold at its Osceola placer mine" in 1984. Equipment was on the site and was to be ready for full-scale production by mid-April, and a season of 7-1/2 to 8 months was anticipated. During 1983 the company had run about 15,000 yards of placer gravel through the set-up," and in 1984 it expected to "run some 150,000 yards, carrying about 0.02 ounces per yard of gold." While the company sank several churn drill holes, most of the sampling was done by trenching. It was found that the area contained "considerable low-grade placer material, especially at depth," but the company was "not encouraged by the grade in the deep gravels." The drilling hit water at 350 feet and bedrock at 400 feet. Although there was "gold all the way down," its value "was only about 50 cents a yard." At the time, the six-man operation had a front-end loader and a backhoe loading into a 12-1/2-yard dump to move ore to the processing site.[210]

TUNGSTEN (HUB, LINCOLN, SHOSHONE) MINING DISTRICT

Location

The Tungsten Mining District, sometimes commonly referred to as the Hub district, is nearly coextensive with T. 13 N., R. 68 E., on the west slope of the Snake Range. It includes Wheeler and Baker peaks along the summit of the range on the east edge of the district, and the Hub Mine Basin near the center. The hübnerite-scheelite bearing veins of the Hub Mine area are the only deposits in the district known to have been productive.[211]

History

As early as 1885 prospectors noticed prominent outcrops in the veins of white quartz and brownish gray granite in the vicinity of what would later become the Tungsten Mining District. Samples of the unknown mineral were sent to a prominent reduction works in California for chemical analysis. At the time a chemist reported the specimens to be "specular hematite." Later in January 1899 other prospectors, refusing to accept the mineral as one of an iron compound, sent samples to Denver for analysis and learned that the mineral was hübnerite and valuable as a source of tungstic acid.

In January 1900 the *White Pine News* published an article reporting the discovery of hübnerite and establishment of the Tungsten Mining District. The newspaper stated:

---

209. U.S. Bureau of Mines, "Mineral Investigation of the Wheeler Peak Roadless Area," MLA 56-83, 1983, pp. 4-5.

210. *Intermountain Pay Dirt*, November 1983.

211. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 79. Further information on the geology and character of the district's ore deposits may be seen in Fred D. Smith, "The Osceola, Nevada, Tungsten Deposits," *Engineering and Mining Journal*, LXXIII (March 1, 1902), 304-05, and F.B. Weeks, "Tungsten Deposits in the Snake Range, White Pine County, Eastern Nevada," U.S. Geological Survey, Bulletin 340, *Contributions to Economic Geology, 1907*, Part I, pp. 263-70.

> The past year has witnessed the discovery of hubnerite in White Pine county, Nevada, on what is known as Snake range, at the base of Wheeler's Peak, and the establishing of a new mineral district called Tungsten mining district, covering an area of ten square miles. The camp of Tungsten is about twelve miles south of Osceola. Tungsten ore in the form of hubernite was first discovered in January, 1899, by Charles W. Gaby, who made the first location for himself and partners, W.D. Burtin and George Doyle, who with R.A. Millick and J.H. Marriott, formed the district which now has thirty claims recorded, all carrying the same mineral. The country rock is granite and quartzite and the ore occurs in fissures from a few feet to ten feet or more. On one of the first locations made the vein crops out for a 1000 feet and is from two to ten feet thick, showing mineral scattered throughout. Over ten tons of float has been gathered below this croppings which carries 50 per cent hubnerite, several pieces weighing 500 lbs. or more being nearly pure metal. On the extension of this vein is one rich chute which crops 75 feet and 2 feet thick and over one-half its bulk is almost solid material. Boulders weighing a ton are scattered below this, and several tons have been gathered for shipment. This one easily concentrates from 65 to 72 per cent of tungistic acid, which is worth in the Eastern market from $4 to $5 per unit. Tungistic acid is used in the manufacture of steel, principally for fine tool steel, and as an alloy for tempering large gun barrels, etc. The principal market is in Europe, although a few firms in the United States use it. Most of the claims of this district are under bonds to Eastern parties, who will next spring put in a large concentrating plant, since this ore will concentrate rapidly, and save much in hauling to Frisco, Utah, the nearest railway point, a distance of ninety miles. The district has the advantage of good roads plenty of timber and water, hence is blessed with advantages for putting in a concentrating plant near the mines. This being a new mineral for the West results will be watched with much interest by mining men.[212]

National mining journals soon began publishing accounts of the new district. In May 1899 the *Mining and Scientific Press* reported:

> Ten days ago a location was made south of Osceola by Gaby, Benton & Doyle of Salt Lake on a mineral known as hubnerite, used in the manufacture of steel. The vein is 2 to 4 feet wide and has been exposed for 400 feet on the line of the ledge and has granite walls.[213]

The *Engineering and Mining Journal* carried a different version of the discovery of the hübnerite deposits. That periodical reported that an "alleged very rich vein of tungsten at Wheeler's Peak" had been discovered. The vein was "tied up under bond by Messrs. R.H. Terhune and S.E. Crager of Salt Lake City." The ledge was "2 to 8 ft. wide, traceable for 2,000 ft." The pay seam was "40% wolframite" and much of the ore carried "70%."[214]

During 1900 a shipment of some ten tons of concentrates, carrying from 65 to 70 percent tungstic trioxide, was made from the district. The owners then sold their claims for $3,000

---

212. *White Pine News*, January 11, 1900.

213. "Mining Summary – Nevada," *Mining and Scientific Press*, LXXVIII (May 20, 1899), 539.

214. "Osceola District, E. & M.J., 1899," File No. 335, Osceola Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

to James H. Marriott of Osceola, who had previously located the surrounding claims showing veins of the mineral.[215]

In August 1900 Geologist F.B. Weeks of the U.S. Geological Survey made a survey of the new mining district. His field reconnaissance resulted in the following observations:

> Prior to that time [August 1900] a small amount of ore had been gathered from the débris of the surface below the outcrop of the vein, and had been shipped in ton lots. The mineral was also seen to be disseminated through the loose soil of the mountain slopes.
>
> At the time of this examination a small gasoline plant with crusher and jigging apparatus was being installed so that shipment by the carload is now possible.
>
> The vein in which the hübnerite occurs cuts across the country rock, which is a rather coarse porphyritic granite of the usual quartz-mica-hornblende variety. The granite has a rudely bedded structure, parallel to that of the overlying Cambrian quartzite which dip 20° to 25° SSW. The strike of the vein is N. 68° E., and the dip is 65° NW. The main vein is normally about 3 feet in width. In places it pinches to a few inches in thickness, but resumes its usual width within 30 to 40 feet. Several smaller veins from a few inches to a foot in thickness were seen to outcrop on the slopes and could be traced to the main vein, with which they form a sharply acute angle. The main vein was traced for a distance of 2,100 feet by croppings and floats from its outcrop near the base of the lowest foothill up the slope of the mountain.
>
> A sufficient development of the vein had not been made at the time of the examination to determine the extent of the ore deposition. A tunnel about 40 feet in length had been driven in at the lowest outcrop of the vein, and was the only opening that had been made. The walls of the vein are well defined. Where the vein has its average thickness it is formed of a milky-white quartz and carries a large amount of the hübnerite. Where the vein is pinched the quartz is schistose and the ore is in thin stringers and of small amount. The ore occurs in solid masses, frequently attaining a thickness of 6 to 12 inches. It is disseminated through the vein material in thick, plate-like forms, and also occurs crystallized with the quartz crystals. Small shoots of ore were seen penetrating the country rock for a few inches. The vein material is readily crushed, and the mineral, on account of its weight, is easily separated by jigging.
>
> Later information stated that the tunnel was extended to a length of 65 feet, the vein widened out to 4 feet, and that the mineral occurs in bunches across the full width of the vein. Scheelite has also been found in small bunches and streaks with the hübnerite.
>
> On one locality on the vein there was a somewhat remarkable occurrence of the ore. It was found in large bunches or blocks averaging 75 per cent of tungstic acid, and from a small space 4-1/2 tons of the tungsten ore had been obtained. From report it was learned that other smaller quartz veins carrying wolframite

---

215. U.S. Geological Survey, *Mineral Resources of the United States, Calendar Year 1900* (Washington, Government Printing Office, 1901), pp. 257-58; Smith, "The Osceola, Nevada, Tungsten Deposits," 304; and *White Pine News*, January 17, 1901.

had been found and located in the immediate vicinity. The veins are said to carry gold in very small amount.[216]

Development work on the tungsten deposits continued in 1901. That year Dr. W.F. Hillebrand made a qualitative test of several specimens from the principal vein that showed the ore to be hübnerite. It was noted, however, that "the only drawback to these deposits" was "their distance from railroad transportation." Nevertheless, the mine appeared "to be singularly favored, for Nevada mines, in that it is very accessible, being practically in the valley, at the foot of the mountain, and in close proximity to water both for milling purposes and for power." The mountain sides above the deposits were "still covered with wood for fuel" and some of the lumber was "large enough for mill and mine timbers."[217]

Because of the distance from the tungsten deposits to the nearest railroad most of the activity in the district consisted of annual assessment work during the early 1900s. Actual production began in 1904 when Marriott established the Tungsten Mining and Milling Company to develop the deposits. That year the new firm mined about 80 tons of ore but did not concentrate any portion of it.[218]

Transportation to the Tungsten Mining District was improved in September 1906 with construction of a dirt wagon road to Ely which crossed the Schell Creek Range "over a comparatively low pass with no very steep grades." At Ely the concentrated ore was loaded aboard the Nevada Northern Railway and shipped to eastern refineries. By 1907 some thirty claims had been located in the district, all of which were controlled by the Tungsten Mining and Milling Company.[219]

In 1909 George Doyle of Osceola discovered "fine tourmaline needles in glassy quartz near the hübnerite tungsten deposits." Development work was soon commenced by R.C. Hills of Denver, Colorado.[220]

In 1909 it was reported that Marriott had "partly developed a tungsten mine in Wheeler's Peak." The tungsten ore occurred "in a vein between granite walls, the white quartz gangue carrying 8 to 10% tungsten." He was planning to build a small ore concentration plant to facilitate his operations.[221]

---

216. *Twenty-First Annual Report of the United States Geological Survey to the Secretary of the Interior, 1899-1900, Part IV* (Washington, Government Printing Office, 1901), pp. 319-20, and U.S. Geological Survey, *Contributions to Economic Geology, 1902* (Washington, Government Printing Office, 1903), p. 103.

217. U.S. Geological Survey, *Mineral Resources of the United States,* Calendar Year 1900, p. 262, and Smith, "The Osceola, Nevada, Tungsten Deposits," 305.

218. *White Pine News*, January 19, 1905; U.S. Geological Survey, *Mineral Resources of the United States, Calendar Year 1904* (Washington, Government Printing Office, 1905), p. 331; and "Mining Summary – Nevada," *Mining and Scientific Press*, XCI (September 30, 1905), 233.

219. Weeks, "Tungsten Deposits In the Snake Range, White Pine County, Eastern Nevada," pp. 263-70. For more data on the Nevada Northern Railway, see David F. Myrick, Railroads of Nevada and Eastern California (two volumns, Berkeley, California, Howell-North Books, 1962), I, 113-34.

220. U.S. Geological Survey, *Mineral Resources of the United States, Calendar Year 1909, Part II – Nonmetals* (Washington, Government Printing Office, 1911), p. 776.

221. "General Mining News – Nevada – White Pine County," *Mining and Scientific Press*, XCVIII (April 17, 1909), 539.

During the fall of 1909 Marriott sold his hübnerite claims in the Tungsten district to Oscar A. Turner, a Tonopah mine operator and president of the Ely Central Copper Company, who organized the Hübnerite Tungsten Company. For the remainder of the year Turner employed thirty men in prospecting and development work on his new property.[222]

In 1910 the Hübnerite Tungsten Company was reorganized as the United States Tungsten Corporation, a firm controlled by officials of the Tonopah Mining Company of Philadelphia. Considerable development work was carried out by the new concern on its 75 claims in 1910. The property, under the immediate supervision of E.L. Fletcher, was "worked through a series of tunnels." The ore had been "systematically blocked out," and a mill was "being built on the ground." The property was "well improved, having a store, boarding-house and instead of the old fashioned bunk house, where all are put in one room, cabins are provided for the men with bunks for from two to four in each cabin." Mining equipment consisted of two 35-horsepower steam boilers, a 5-drill Norwalk air compressor, sawmill, and blacksmith shop. A fifty-ton mill was erected with a crusher, rolls, screen, classifiers, Wilfley tables, and Isbell vanners. Water power by which the mill could be operated part of the year was furnished by a 6,000-foot ditch that brought water from Williams Creek and discharged into a pipeline 600 feet above the mine. An electric plant to furnish power when water was insufficient was also erected. Twenty-eight men were employed, all but six being white Americans. Daily pay for the workers was $4 for machinemen, $3.50 for miners, and $5 for engineers.[223]

The *Mining and Scientific Press* reported on January 21, 1911, that the first shipment of concentrate from the Hub Mine would be made to New York within several days. The crude ore contained from 1 to 50 percent tungstic acid. The property was opened by a tunnel, and the mining was done by drills operated by a water-driven compressor. The ore was trammed from the tunnel directly to the ore-bin at the mill.[224] Despite the promise of the mining operations, however, the mill closed before the end of the year, because of low prices for tungsten and financial entanglements of the company, after producing about 1,100 units of tungstic trioxide.[225]

With the rising price of tungsten as a result of World War I operations resumed at the Hub Mine in late 1915. By November of that year the United States Tungsten Corporation employed 100 men, and it was widely believed that one could "sell a 65% product for $45 per unit."[226] In January 1916 the *Mining and Scientific Press* reported that developments

---

222. U.S. Geological Survey, *Mineral Resources of the United States, Calendar Year 1909, Part I – Metals*, pp. 579-80.

223. *Annual Report of the State Inspector of Mines, 1910*, p. 66, in Appendix to Journals of Senate and Assembly, State of Nevada, 1911, 25th Session, Vol. 2, and U.S Geological Survey, *Minerals Resources of the United States, Calendar Year 1910, Part I – Metals* (Washington, Government Printing Office, 1911), p. 739. See Appendix L for a copy of the "Preliminary Report on the Tungsten Mining and Milling Company's Tungsten Property at Tungsten, Nevada," March 7, 1912.

224. "General Mining News – Nevada – White Pine County," *Mining and Scientific Press*, CII (January 21, 1911), 154-55.

225. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 79, and *Annual Report of the State Inspector of Mines, 1912*, p. 38, in Appendix to Journals of Senate and Assembly, State of Nevada, 1913, 26th Session, Vol I. According to the Annual Report of the State Controller for 1911, the U.S. Tungsten Corporation worked 375 tons of material with a gross value of $6,525. The cost of the extraction was $5,260, while that for the transportation and reduction were $600 and $937.50, respectively. *Annual Report of the State Controller, 1911*, in Appendix to Journals of Senate and Assembly, State of Nevada, 1913, 26th Session, Vol. I.

226. "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXI (November 27, 1915), 836.

in the Hub Basin, recently renamed Tungsten Mines, consisted "of a 1700-ft. adit, obtaining a vertical depth of 700 ft. on one vein." An upper adit had opened "a 400-ft. continuous shoot." A mill was operating to process the ore, most of which was hübnerite.[227]

During the winter of 1915-16 shipment of the ore from the Hub Basin to Ely was hampered by heavy snow. Up to two feet of snow blocked the roads. Thus, 18-mule pack trains were used to transport the ore to Ely.[228]

By April 1916 it was reported that the United States Tungsten Corporation mill had been working "for many months with satisfactory results." The daily yield was "about 1000 lb. of over 60% concentrate." The company had recently begun some ground sluicing placer work and was "finding a good deal of tungsten, including some large nuggets, without having reached bedrock."[229]

On April 21, 1916, the United States Tungsten Corporation shipped four tons of tungsten concentrate from its Hub Mine, the nearby mining camp being known as Tungsten. The buyer of the concentrate was the Midvale Steel Company of Pittsburgh, Pennsylvania, which was "in the market for tungsten ore containing over 3% delivered at Tungsten." The sale of the four tons was worth $25,000, and a published wage schedule of the mining company indicated that its lowest wages were $4 per day for surface labor and shovelers.[230]

Tungsten mining excitement continued to increase throughout the Snake Range during the spring of 1916. In May P.B. McDonald published a feature article in the *Mining and Scientific Press* on the "tungsten rush," which included considerable information on the Hub Mine. He observed:

> In the centre of things is the snow-covered summit of Mount Wheeler, the highest peak in Nevada, 13,058 ft. high. Along the western side of the range in particular – the side toward Ely – a number of camps have been established, several mills are being built, and many claims have been staked. Most of the showings are scheelite, in small seams and patches, contained in quartz veins that strike across the north-south trend of the range. The scheelite varies from pearly-gray or white of almost the same shade as the quartz to yellow or salmon-pink. Hübnerite is found at several of the principal prospects, in some instances in association with scheelite; in fact, crystals of the two have been found intertwined. The quartz veins vary up to several feet wide and carry from 1/2 to 3% of tungsten, with high-grade patches of 15 or 20%.

According to McDonald, the United States Tungsten Corporation was operating the oldest tungsten mill in the Hub Basin. Seventeen years before when the Hub Mine had been staked, the hübnerite had been concentrated in a small mill. The cost of freight had been so high and the demand for hübnerite so uncertain that the early operators had become discouraged. Since then, however, the mine had

> been operated at intervals, but people were inclined to laugh at this attempt to mine such an unheard-of mineral as the black coal-like hübnerite. Today a

---

227. "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXII (January 29, 1916), 183.

228. Read, *White Pine Lang Syne*, p. 185.

229. "Review of Mining – Ely, Nevada," *Mining and Scientific Press*, CXII (April 1, 1916), 485.

230. "The Mining Summary – Nevada," *Mining and Scientific Press*, CXII (May 6, 1916), 685.

number of companies are operating in the Snake range and other mills are being built.

One of the factors contributing to the attraction of preparing tungsten for the market was "the ease of concentrating it." In many cases this was

> done in hand-jigs of the Joplin type, but where water is plentiful power is employed. The heaviness of the tungsten minerals makes them easy to separate, so that no complicated chemical process is necessary. Care must be taken, particularly with scheelite, not to reduce it to slime, as this friable mineral makes a very floury mess. Grinding to 30-mesh is about as fine as is done.

A notable feature of the tungsten prospecting, according to McDonald, was the "extensive use made of automobiles." The "50 or 100 miles" that was "necessary to traverse in order to reach a new discovery" was "covered with ease and speed by a succession of motorcars." Trucks and "traction-engines" were employed to take supplies, machinery, and equipment to the mines.[231]

The eastern Nevada tungsten boom quickly subsided by the summer of 1916, the result of reduced demand and lower prices for that commodity. By June the United States Tungsten Corporation reduced its mill operation "to one shift for want of ore." Nevertheless, it milled 2,767 tons of ore worth $38.86 per tone during the second quarter of the year for a profit of $36,177. In September it was reported that the corporation had "leased most of its ground in blocks on a sliding scale for the ore."[232]

All told, the United States Tungsten Corporation worked 8,226 tons of ore in 1916 having a gross value of $367,086.45. The costs of extraction, transportation, and reduction were $129,206.24, $46,764.37, and $76,371.58, respectively, leaving a net yield of $114,744.26.[233] After a year of virtual inactivity the United States Tungsten Corporation was dissolved in December 1917. The mill at the Hub Mine was dismantled, and the firm's assets were sold to pay the firm's indebtedness.[234]

During the height of the tungsten mining rush in the Snake Range hübnerite veins were discovered in the granite and quartzite formations along Williams Creek, some 1-1/2 miles south of the Hub Mine. On March 24, 1916, the Consolidated Tungsten Mines Company was organized by McGill and Ely interests with a capitalization of $500,000. The new firm set to work developing its 20 lode and 10 placer claims. Several hübnerite viens were opened by adits, containing 1.4 to 13.39 percent tungsten.[235]

---

231. P.B. McDonald, "Tungsten Mining in the West," *Mining and Scientific Press*, CXII (June 3, 1916), 757-58.

232. "The Mining Summary - Nevada - White Pine County," *Mining and Scientific Press*, CXII (June 3,1916), 839; "The Mining Summary - Nevada - White Pine County," *Mining and Scientific Press* (June 24, 1916), 958; "The Mining Summary - Nevada - White Pine County," *Mining and Scientific Press*, CXII (August 5, 1916), 218; and "The Mining Summary - Nevada - White Pine County," *Mining and Scientific Press*, CXIII (September 30, 1916), 510.

233. *Annual Report of the State Controller, State of Nevada, 1916*, p. 35.

234. U.S. Geological Survey, *Mineral Resources of the United States, 1917, Part I - Metals* (Washington, Government Printing Office, 1921), 946, and Weed, *International Edition, The Mines Handbook*, 1922, pp. 1,112-13. Also see Charles Joseph Vitaliano, "Tungsten Deposits of the Snake Range, White Pine County, Nevada" (Unpublished M.A. thesis, Columbia University, 1938), pp. 20-21.

235. "Review of Mining - Ely, Nevada," *Mining and Scientific Press*, CXII (April 1, 1916), 485.

By May 1916 the company had commenced construction of a 30-ton mill, and the Big Four vein had been opened and the ore "traced on the surface for 400 ft." Some of the workings showed "so much hübnerite" that they resembled "a coal mine, with the black ore." The "streak of high-grade" ore was "3 ft. wide in a vein" that was "from 7 to 11 ft. wide." Large bodies of promising ore had been opened on the Gem and Gem Extension claims, and men were prospecting on the nearby Doseoaris vein.[236]

With the decline in the price and market for tungsten, however, the Consolidated operations quickly declined during the summer of 1916. By August the company operations had closed.[237]

From 1917 to 1951 no documented mining activity occurred in the Tungsten district. The Hub Mine was reopened in 1952 by L.T. Tilford who organized the Hub Basin Mining Company and shipped scheelite and hübnerite concentrates.[238] The following year Tilford produced scheelite-hübnerite concentrates from 1,000 tons of dump ore, averaging 0.5 percent tungstic trioxide.[239]

A survey of the Tungsten district by the U.S. Bureau of Mines in 1958 found no active mining operations. There were, however, fourteen unpatented claims held through assessment work. The Hub Mine had been developed along the main vein for some 1,700 feet at various levels. Other nearby veins were prospected by shallow cuts and small drifts. The reserves of the Hub vein were depleted, and "minor reserves" were "inferred in other nearby unexplored and partially explored veins."[240]

According to a report prepared by the Nevada Bureau of Mines and Geology in 1976, the Tungsten district had a total of seven productive years during its history. Production from the district

> including 3,600 units purchased from mines in other districts, was a little more than the recorded total of 10,088 tons, including 1,000 tons of dump ore, and 14,000 units of WO^3 [tungstic trioxide], valued at $704,000.[241]

---

236. "Review of Mining – Ely, Nevada," *Mining and Scientific Press*, CXII (May 20, 1916), 762.

237. "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXIII (August 12, 1916), 253.

238. U.S. Bureau of Mines, *Minerals Yearbook, Area Reports, Volume III, 1952*, p. 609.

239. U.S. Bureau of Mines, *Minerals Yearbook, Area Reports, Volume III, 1953*, p. 674.

240. "Reports on the Investigations of Mineralization In and Adjacent to the Humboldt National Forest, Mt. Wheeler Area," November 5, 1958, p. 4.

241. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, p. 79.

LEXINGTON (LEXINGTON CANYON, SHOSHONE) MINING DISTRICT

Location

The Lexington Mining District includes the watersheds of Big Wash, Lexington Creek, and Black Canyon on the east slope of the southern Snake Range. In the early days the eastern part of the Shoshone district was organized as the Lexington district.[242]

History

The earliest discoveries and the date of establishment of the Lexington Mining District cannot be documented. The earliest reference to the district was in 1874 when the Nevada state mineralogist observed that the mines in the Lexington district, which had been organized out of the eastern part of the Shoshone, were either abandoned or had insufficient work being done in them as to be "worthy of mention."[243]

Some nine years later in the spring of 1883 the *White Pine News* reported on some mining activity in the Lexington district. On April 28 the newspaper stated that some Boston parties were taking a five-stamp mill to the district. Three weeks later on May 19 the newspaper observed that George Coburn had gone to the district where he and a Mr. Bibbons had valuable mining property.[244]

In 1883 the Director of the Mint reported on mining activity in the Lexington district. Although there were no available records of gold production in the district, he observed:

> In the Lexington district . . . a shaft has been sunk 50 feet on the old ledge, the ore found assaying from $20 to $70 per ton, without any dead work being done in extracting it. As there is sufficient water for all mining purposes, it is expected that the aid of capital will soon reopen the old mines.[245]

No documentation for the Lexington Mining District could be found for the years 1884-1906. In February 1907, however, the *White Pine News* reported that Ernest R. Wooley purchased the Razzle Dazzle claim and three other claims in the district from William F. Fowler and D.J. Simonson for $3,700. After the purchase was completed, he transferred the claims to the Lexington Concord Mining Company for $10,000.[246]

Little mining activity occurred in the Lexington district between 1907 and 1915. In November of the latter year the *Mining and Scientific Press* reported that W.L. Chapman and A.D. Taylor, who were connected with the San Francisco-based Atkins, Kroll & Co., had discovered scheelite "in Big wash, 10 miles south of Snake creek, which is eight miles west of Garrison, Utah." The two-foot vein of scheelite had been traced through five claims staked by the two men. Chapman and Taylor were "packing high-grade ore off the

---

242. *Ibid.*, p. 56.

243. *Biennial Report of the State Mineralogist of the State of Nevada For the Years 1873 and 1874*, p. 89.

244. *White Pine News*, April 28, May 19, 1883.

245. *Report of the Director of the Mint Upon the Production of the Precious Metals in the United States During the Calendar Year 1883*, p. 560.

246. *White Pine News*, February 18,1907.

mountain, 9,000 ft. altitude, with burros." The men were also operating along Snake Creek and Sacramento Pass, but cold weather and snow were interfering with their mill work.[247]

The same periodical reported in April 1916 that Chapman and Taylor had discovered "the best and highest scheelite prospect in the county" at "the head of Big wash, under Mt. Washington, at an elevation of 9500 ft." After making "several shipments of better than 70% crude ore," deep January snows "drove them out of the area."[248]

In May 1916 the *Mining and Scientific Press* reported that Chapman had recently made a shipment of crude ore containing 78% tungstic acid "from the camp of Big Wash." The shipment was "one of a series of the highest grade ever made from crude ore without concentration." The ore was

> crystallized scheelite, and contains some rare and beautiful specimens, the crystals being translucent and having the general appearance of calcite crystals. Work has been in progress on the property throughout the winter, and a number of other shipments of the same grade have been made, all of them averaging over 78%. The ore occurs as irregular deposits in a belt of metamorphosed limestone 200 ft. wide, and operations might be classed as pocket-mining. From one of these pockets a single chunk of this high-grade ore was taken, weighting 320 lb. Among the specimens Mr. Chapman brought with him on this trip to Ely was a large geode, 8 to 10 in. diam., the interior of which is lined with pure crystals of scheelite. He considers that the east side of the Snake range will prove to be as important a producer of tungsten ores as the west side.[249]

Development and production at the Chapman-Taylor Mine on Big Wash subsided in late 1916 as a result of the declining price and market of tungsten. No production has been reported since that time, because, according to the U.S. Bureau of Mines, the "fractures carrying scheelite were thin and too widely spaced to provide for a high-grade mining operation," and the intervening rock carried "too little disseminated scheelite to mine as a large scale low-grade operation."

An inspection by the U.S. Bureau of Mines in 1963 found that the Big Wash property consisted of five unpatented claims with "development workings" comprising "5 open cuts of varying depth, and length, 2 shafts, 10 and 17 feet deep, a northward-trending adit 130 feet in length, and a large pit area 360 feet long and 60 feet wide." A total of some "500 tons of selected and sorted ore "had been produced and shipped "that contained less than 1.0 percent tungstic trioxide."[250]

After the Chapman-Taylor Mine fell into disuse, other promising tungsten claims were prospected in Lexington Canyon. In 1918 the Bonanza Mine (sometimes referred to as the Bonanzy or Lexington Mine), located near the headwaters of Lexington Creek, yielded scheelite worth $20,000. In 1941 a 50-ton concentrating mill was constructed at the

---

247. "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXI (October 23, 1915), 646; and "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXI (November 27, 1915), 836.

248. "Review of Mining – Ely, Nevada," *Mining and Scientific Press*, CXII (April 1, 1916), 485.

249. "The Mining Summary – Nevada – White Pine County," *Mining and Scientific Press*, CXII (May 20, 1916), 767.

250. "Big Wash," USBM Unpubl. Data, 1963, File No. 339, Snake Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

Bonanza Mine, and scheelite concentrate worth about $80,000 was produced during the next several years. There are no records of subsequent production from the mine. In 1963 the U.S. Bureau of Mines found that development on the Bonanza property consisted "of a number of shafts 10 to 65 feet in depth and several surface pits and trenches."[251]

Other mines have also been developed in the Lexington district for which there is no documentation. These workings include prospects in Arch Canyon, the Good Hope Mine near the headwaters of Lexington Creek, the Ponderosa Mine, and the Arch Canyon Mine near Lexington Arch.

---

251. Nevada Bureau of Mines and Geology, Bulletin 85, Part II, pp. 56-57; U.S. Bureau of Mines, "Mineral Investigation of the Highland Ridge Roadless Area, White Pine County, Nevada," MLA 68-83, by S. Don Brown, 1983, p. 4; and "Lexington," USBM Unpubl. Data, 1963, File No. 332, Minerva Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

CHAPTER SEVEN
RANCHING AND AGRICULTURAL DEVELOPMENT IN SNAKE AND SPRING VALLEYS

INTRODUCTION

The purpose of this chapter is to present a historical overview of agricultural and ranching development in Snake and Spring valleys. Particular attention will be focused on the settlers and historic agricultural development patterns in the vicinity of present-day Great Basin National Park. To better understand the context within which these developments occurred agricultural development in Nevada and White Pine County will be reviewed.

AGRICULTURAL AND RANCHING DEVELOPMENT IN NEVADA: 1850s – 1900s

The mineral strikes in Nevada after 1859 and the building of the Central Pacific Railroad across the state during the late 1860s stimulated agricultural and livestock development. The successive mining booms advertised Nevada and brought to many different parts of the state thousands of persons who had to be fed. This necessity led to agricultural and livestock development in the lands adjacent to the mining areas. This is not to imply, however, that mining always preceded agricultural development, because agriculture developed originally in Nevada as part of the emigrant movement to California and existed independently of mining in some instances.

Euroamericans commenced farming in the area of present-day Nevada when John Reese and his party from Salt Lake City arrived in the Carson Valley in June 1851. They planted grain and vegetables which they later sold to emigrants on their way to California. Reese's success brought additional ranches into Carson Valley, and before the end of the year more than 100 persons were living near Reese's settlement, by that time more commonly referred to as Mormon Station. By 1857, when the official call for their return to Salt Lake came from Brigham Young, the Mormons were well on their way to establishing a stable agricultural society under the leadership of Orson Hyde. Mormon farms had spread throughout the Carson, Eagle, and Washoe valleys, and irrigation canals and flour mills had been constructed. Although the withdrawal of the Mormons caused a temporary setback in agricultural development in Carson County, by 1859 most of the Mormon farms were again in production, having been either purchased from the retreating Mormons or appropriated after their departure.[1]

The year 1851 also marked the beginning of permanent livestock development in Nevada. The first livestock brought into the present state by Euroamericans came with the fur trappers. In 1826-28 Jedediah Smith and Peter Skene Ogden brought horses and mules, and cattle entered for the first time in 1834 when Joseph R. Walker took 47 head from California on his return to the Great Salt Lake. The first cattle to winter in what is now Nevada, however, were those belonging to John Reese and a few dairy cattle brought into Carson Valley that same year by Captain H.A. Parker, a wagon master for Ben Holladay. As Mormons continued to settle in present-day Nevada during the mid-1850s, each family brought several head of cattle and some drove as many as 40 head.

---

1. For an overview of the early history of agricultural development in Nevada, see Elliott, *History of Nevada*, pp. 115-22. For further data on the development of Nevada agriculture, see Cecil W. Creel, *A History of Nevada Agriculture* (Reno, University of Nevada, 1964), and Cruz Venstrom and Howard Mason, comps., "Agricultural History of Nevada," Reno, 1944 (Typescript, Special Collections Department, University Library, University of Nevada, Reno).

In 1858 a disastrous drought in California prompted stockmen to drive their cattle into Nevada to winter in the Carson and Eagle valleys and in the Truckee Meadows. This practice increased until in the 1870s and 1880s the presence of out-of-state cattle on Nevada rangeland became a major threat to local interests.

On the eve of the discovery of the Comstock Lode, the foundations of three important ranching developments in present-day Nevada were laid. One was initiated by H.N.A. ("Hock") Mason, who brought a herd of cattle to winter in what became known as Mason Valley in 1859. His success led him to establish a permanent herd of cattle in the valley, and from this beginning he became one of the most important livestock men in Nevada during the Comstock era. In August 1859 four cattlemen from Stanislaus County, California – R.B. and T.B. Smith, S. Baldwin, and J.A. Rogers – crossed the Sierra with a herd and located in an area just west of Mason Valley that soon became known as Smith Valley. A third ranching development initiated in the 1850s was that of Henry Fred Dangberg, who settled in the Carson Valley in 1855, and within a few years had established the foundations of one of the most important ranching empires in western Nevada.

Dangberg gained fame by experimenting with non-native alfalfa seed in an effort to solve the twin problems of overgrazing and winter feeding then facing the cattle industry. Unlike sheep which were able to forage in Nevada's mountains, cattle quickly overgrazed the native grasses. Thus, Dangberg's experiments helped to solve this problem by demonstrating that non-native alfalfa did well in Nevada's alkaline soil and climate.[2]

Probably the first sheep to enter Nevada were the 150 head taken across its southern tip in 1841 by the Workman-Knowland Party on their way to California. The first permanent band of sheep in Nevada was the several hundred Spanish Merinos brought into the Carson Valley in 1852 by C.D. Jones. During the 1850s the future state played a role in the development of the sheep industry in the western United States by serving as a bridge to California where the Gold Rush had created an extensive market for meat. Since sheep could be purchased in New Mexico for less than $1 per head and sold in Sacramento for $5 to $12 per head, a number of large sheep drives were undertaken from New Mexico to California via the Humboldt River route. The first of these was led by Richens Lacy ("Uncle Dick") Wootten in 1852. Over the next eight years it is estimated that half a million sheep crossed Nevada on the way to the California market.

During the late 1850s the beginnings of the sheep industry were established in present-day eastern Nevada. Pedro Altube, a Basque immigrant, recognized similarities between the mountains of the Great Basin and his native Pyrenees. In 1858 he founded the Spanish Ranch in present-day Elko County, and in later years he brought many of his countrymen to the region to help herd his large flocks of sheep. Thus, Basques eventually became an integral part of Nevada's social structure. Besides the Basque, many Chinese, unemployed after completion of the Central Pacific Railroad in 1869, were hired to tend the flocks.[3]

The discovery of the Comstock Lode in the summer of 1859 ushered in a new stage in the development of Nevada agriculture, as the same economic factors which had created a market in California for cattle and sheep in the 1850s now worked to bring thousands of

---

2. For more information on the cattle industry in Nevada see James A. Young and B. Abbott Sparks, *Cattle In the Cold Desert* (Logan, Utah State University Press, 1985).

3. Clel Georgetta, "Sheep in Nevada," *Nevada Historical Society Quarterly*, VIII (Summer 1965), 34. For more data on the history of the sheep industry in Nevada see Edward Norris Wentworth, *America's Sheep Trails* (Ames, Iowa State College Press, 1948), and Byrd Wall Sawyer, *Nevada Nomads: A Story of the Sheep Industry* (San Jose, California, Harlan-Young Press, 1971).

these animals from California to the Comstock and stimulated development of permanent farms and ranches throughout western Nevada. The thousands of people who poured into the Comstock area during the early 1860s needed food of all kinds, and farmers and ranchers in Carson, Eagle, Washoe, Mason, and Smith valleys put additional acreage into production to meet the demands for vegetables, flour, dairy products, and livestock feed. As the Comstock towns moved from rough frontier communities to cosmopolitan cities the demand for fresh vegetables and fruits induced Nevada farmers to extend their gardens, raise strawberries, raspberries, and gooseberries, and plant apple and peach orchards.

Livestock developments prospered as a result of the Comstock boom. Ranching spread throughout the valleys of western Nevada and into other parts of the state, partly because of the Comstock demand, but more often as a result of mineral discoveries in nearby areas. Each successive mining rush in Nevada during the 1860s created demands for agricultural products.

During the 1850s and 1860s both ranchers and farmers appropriated water whenever and wherever it was needed to irrigate their crops. When the Nevada territory was established in 1861, the Common Law of England was adopted which recognized only the riparian doctrine of water rights. The riparian doctrine stated that only property owners along waterways had rights to water, and that right was to the full flow of the stream, undiminished in either quantity or quality. Farmers often constructed brush dams indiscriminately to divert water and engaged in other erratic irrigation practices. Thus, in 1866 the state legislature passed an act allowing a person to divert the waters of any river or stream and provided for a right-of-way for a ditch or flume to carry the diverted water over lands owned by other persons. Thus, the appropriation doctrine of water rights was recognized for the first time in Nevada. Despite the initiation of numerous lawsuits regarding the water rights issue, irrigation development proceeded and by 1868 western Nevada had some 45,000 acres of irrigated land.[4]

According to Russell R. Elliott in his *History of Nevada*, it is quite apparent that ranching increased in the state during the 1860s largely because of the expanded market provided in the population jump from 6,857 in 1860 to 42,491 in 1870, and that this population growth was due primarily to the Comstock and other mining rushes during that decade. Other factors, however, were also involved in the growth of agricultural development. The missionary activity of the Mormons during the 1850s in Carson County, Las Vegas, and Snake Valley, and again in the 1860s in the Lincoln County area, was important in establishing agriculture and livestock raising in those regions. In addition, the cattle and sheep drives across Nevada in the 1850s and the use of certain areas in the state by California and Utah stockmen as temporary feeding areas for their livestock during drought conditions in the 1860s demonstrated the grazing potential of this seeming desert land. Ruby Valley in Elko County is an example of agricultural development due, in the beginning at least, to the freighting and stage business in the late 1850s and early 1860s.

Many of the first livestock developments in Elko County also had origins outside of mining. Peter Haws established one of the first ranches along the Humboldt River in the early 1850s to take advantage of emigrant trains passing through the area. The land itself attracted a number of ranchers who settled in present-day Elko County during the 1860s and 1870s. The 1860s saw the beginning of four major cattle and sheep empires in Nevada. In 1866 Lewis Rice Bradley began cattle operations in Mound Valley in Elko County. John Sparks, a Texan, moved into Elko County in 1868 and with Jasper Harrell

4. For more data on water rights in Nevada see John W. Bird, "A History of Water Rights in Nevada," *Nevada Historical Society Quarterly*, XVIII (Spring 1975), 27-32; John W. Bird, "A History of Water Rights in Nevada," *Nevada Historical Society Quarterly*, XIX (Spring 1976), 27-32; and W.M. Kearney, State Engineer, comp., *How to Appropriate the Public Waters of the State of Nevada, 1911* (Carson City, 1911).

founded a major cattle empire that included a number of ranches in Oregon and Utah. One of the first cattlemen to switch to sheep was Daniel C. Wheeler, who brought sheep into the Truckee Meadows from Oregon in 1867 and established the most extensive sheep development in Nevada during that decade. An important eastern Nevada sheep ranch began operations in 1865 when William McCurdy, a Civil War veteran, bought out Robert Chin's band in Antelope Valley. In partnership with John Chapman, McCurdy built up a sizable outfit of several thousand head which used the Antelope Range and Antelope Valley for summer and winter range.[5]

As the Comstock mining operations began to decline in the late 1860s, Nevada officials looked to stock grazing as the future economic bonanza of the state. On August 10, 1869, for instance, E.L. Davis, the Nevada Surveyor-General, described this outlook in a letter to James L. Wilson, Commissioner of the General Land Office:

> As deservedly great and valuable as is the mining industry of Nevada, it no longer absorbs the public attention. The grazing capacity of the State is coming to be understood and appreciated. It is destined to be the second great resource of our country. . . . It is the uniform testimony of all, who has traversed the State, that the mountains and foothills produce luxuriantly several varieties of bunch grass. It is noticeable that even in the arid valleys each sage brush shelters two or three bunches of grass. In some parts of the apparently barren plains there are large tracts of what is commonly known as "sand grass" which is admitted to be one of the finest of bunch grasses. This grass grows in bunches about one foot in height, and is loaded with black seed much resembling buckwheat. Stock are fond of this grass and when they feed upon it either green or dry will keep them in prime condition and render good service. All the varieties of the bunch grasses are hardy and grow generally from barren looking soils. Besides these grasses there grows in the valleys a grayish white shrub called "white sage" which is valuable winter feed for stocks. While it is growing it has a resinous and bitter taste and is not eaten, but after it has been touched by the frost it becomes tender, sweet and nutritious. It has been aptly called "winter fat" by stock growers and herders. This white sage and those various bunch grasses are remarkably nutritious and the cattle which feed upon them look uncommonly well after a prolonged seasons constant use. Stock, whether cattle, horses or sheep which have been without shelter in this State, bear palpable evidence in the spring of the fatness of its pasturage and the salubrity of the semi-rigorous season.[6]

The discovery and development of mineral areas throughout the state, the increase in Nevada's population from 42,491 in 1870 to 62,266 in 1880, and the completion of the Central Pacific Railroad in 1869 made the decade of the 1870s a period of remarkable growth for the livestock industry in Nevada. Between 1870 and 1880 the number of cattle in the state increased from 72,000 to 250,000 head, of sheep from 33,000 to 259,000, of horses from 8,000 to 34,000, and of hogs from 4,000 to 12,000.

Since the railroad roughly paralleled the Humboldt, it encouraged the development along that river and its tributaries of ranches which produced hay and commanded neighboring valleys for summer range. In addition, the railroad made outside markets available for Nevada livestock. By the mid-1870s, for example, Elko had become the principal

---

5. Elliott, *History of Nevada*, pp. 118-21. Also see Georgetta, "Sheep in Nevada," 31.

6. Davis to Wilson, August 10, 1869, Nevada Office of the Surveyor General, Reno, Copies of Letters Sent ("Letter Book 'A'"), 1861-1869, Box 1, Series 1, Record Group 49, Records of the Bureau of Land Management, National Archives and Records Administration, San Francisco Branch, San Bruno.

transportation and distribution point for the northeastern Nevada livestock industry, San Francisco was obtaining half of its beef supply from Nevada, and both sheep and cattle were being shipped to eastern markets. Those ranches, many established in 1868 and 1869, which were within driving distance of the railroad, expanded rapidly and others begun in the 1850s and 1860s blossomed into major operations. The 1870s also witnessed the establishment of ranches by Abner C. Cleveland in Spring Valley, White Pine County, and Jewett Adams in the Belmont area of Nye County. Both of these men would later become major livestock producers. Thus, by 1880, as the Comstock depression set in, Nevada's agricultural and livestock developments were expanding.[7]

During the next several decades the growth and development of Nevada agriculture and livestock raising were chronicled in the publications of state officials. The state mineralogist, for instance, noted in his biennial report for 1877-78 that the livestock business in Nevada was booming, particularly in the northern and eastern sections of the state. He observed:

> The soil of the State is generally a loam, most fertile where the underlying rock is limestone, but nearly everywhere sufficiently so to reward the labors of the husbandman, where water can be obtained for the purposes of irrigation. The immense stretches of barren wastes so often seen are only so, because of the want of moistening showers of rain, and streams sufficiently numerous to supply the demands for agriculture. As a large proportion of the land is much better adapted to grazing than to tillage, much attention has been given to the raising of livestock, and the horses, cattle, sheep, and goats bred here are of excellent quality. The winter feed, consisting of bunch grass and white sage, furnishes the best of sustenance for stock, so that, with rare exceptions, is any provision made or stores of fodder laid up for winter use. During the summer months the pasturage in the vicinity of springs, brooks, and creeks on mountain sides and in the cañons supplies the feed, but then winter comes, the herds and flocks feed miles away from water in the valleys. The northern and eastern sections of the State are the best adapted for grazing. Many of the loftiest mountains are covered with a species of bunch grass peculiar to those localities. The table lands and dry valleys in many places are covered with the white sage which makes the best of winter feed for stock. When growing in the spring and summer, this sage is bitter and not eaten, but when the frosts of fall and winter come it is tender, sweet, and nutritious, and better liked by stock than other kinds of feed. So extensive has the business of stock raising become that now the supply far exceeds the wants of the population, and thousands of head of beef cattle are yearly shipped by railroad to the markets of California.

He went on to describe the agricultural potential of arable lands in the state, particularly where irrigation was readily available. Among the areas where the best arable lands were located for the cultivation of grains, vegetables, and fruit were Snake and Spring valleys:

> The agricultural lands of the State are small in proportion to the area, though in all of the valleys where are found streams of water large tracts of land are brought under cultivation, and the crops produced are very superior in character. The best of these arable lands are found in Carson, Eagle, Mason, Washoe, Truckee, Humboldt, Reese River, Owyhee, Tamoille, Ruby, Steptoe, Spring, White River, Snake, Panaca, Pahranegat, Paradise, Muddy, and Las Vegas valleys. There are hundreds of other smaller valleys, and in many of them the soil is quite as productive, though less water is found; and there is no land in

7. Elliott, *History of Nevada*, pp. 121-22.

> the State but what is benefited, for agriculture, by irrigation. In the northern and central valleys all the grains, vegetable, and fruits of a temperate climate are cultivated with success.[8]

Four years later, in 1882, the Nevada Surveyor-General and State Land Register reported on the continuing promise of the state livestock industry. He noted:

> Within the last two years there has been a decided advance in the stock growing interest, owing to the higher prices of meat which are obtained throughout the country. Cattle and sheep are now shipped out of the state, both east and west, and to the best of my knowledge more are shipped west than east. The San Francisco market seems to be the favorite with our stock raisers. Several of our Nevada stock raisers have herds in different parts of the state. Several of our Nevada stock raisers have tried the ranges of Eastern Oregon and Idaho . . . but Nevada has greatly the advantage over her northern neighbors as a stock raising country, on account of her climate, which is less rigorous than in the higher latitudes during the winter and early spring, when the young stock usually makes its first appearance.[9]

In 1902, some twenty years later the Nevada Surveyor-General observed that the "live stock industry of the State is of great importance, and one of the most profitable." He went on to elaborate:

> There are large areas of the public domain which afford pasturage for herds and flocks the greater part of the year. The grasses indigenous to Nevada are of the most nutritious character and are eaten with avidity by horses, cattle and sheep. Stockmen devote more attention to winter feed than was customary some years ago, when, as a general rule, herds and flocks were expected to subsist the year around on the feed afforded by the range. Alfalfa-fed beef and mutton command the highest prices in the markets east and west, and are considered equal if not superior to the corn-fed meats of the States east of the Rocky Mountains.

All told, state livestock assessment statistics showed that ranchers possessed 70,688 horses and mules, 216,679 cattle, 731,075 sheep, 3,445 goats, and 7,995 hogs. Of these totals, White Pine County ranchers had 19,500 horses and mules, 6,404, cattle, 31,000 sheep, and 500 hogs.[10]

In 1906 the Nevada Surveyor-General described the development of agriculture and livestock raising in greater detail. Among other things, he noted:

> The agricultural interests of Nevada, stimulated by the mining revival, are more prosperous than at any previous time in the history of the State. The products of the soil are in demand at remunerative prices, and farmers share in the general prosperity. Mortgages are being redeemed, new lands are being redeemed, new lands are being reclaimed, substantial and, in many instances,

---

8. *Biennial Report of the State Mineralogist of the State of Nevada For the Years 1877 and 1878*, pp. 11-12, in Appendix to Journals of Senate and Assembly, State of Nevada, 9th Session.

9. Quoted in James G. Scrugham, ed., *Nevada: A Narrative of the Conquest of a Frontier Land* . . . . (3 vols., Chicago and New York, The American Historical Society, Inc., 1935), I, 321-22.

10. *Biennial Report of the Surveyor-General and State Land Register, 1901-1902*, pp. 21-22, in Appendix to Journals of Senate and Assembly, State of Nevada, 1903, 21st Session.

palatial residences are being erected and the agricultural valleys are dotted with stately homes. The Government, under the provisions of the Newlands Bill, is engaged in reclaiming the deserts by storing the surplus waters of the principal streams and building substantial canals to divert them from their natural channels to the rich soils of the arid valleys, which require only moisture and cultivation to make them as productive as those of the great farming regions of the Ohio and Mississippi Valleys.

The plateaus and foot hills of Nevada furnish excellent feed for live stock. The indigenous grasses of those regions are very nutritious, and cattle and sheep not only thrive, but fatten, on the open range. The beef produced is pronounced by connoisseurs as being equal to the best in any market, and it finds a ready sale in the East as well as in California. Nevada mutton commands the highest prices in St. Louis, Kansas City, and Chicago, and the demand for it is greater than the supply. The wool produced in this State is of superior quality, and eastern buyers are always ready to purchase it at the nearest railroad station at eastern prices, less cost of freight. Horses, which a few years ago were so numerous that the Legislature passed an Act authorizing their wholesale slaughter on the ranges, are now in brisk demand at good prices. It has been demonstrated that Nevada range horses make the most serviceable and enduring animals for the cavalry service that can be procured by the Government, and, notwithstanding the fact that horses are being supplanted by steam and electricity on street railways in the cities, and by automobiles as mail and passenger carriers in the country, the demand for them seems to increase rather than diminish.[11]

AGRICULTURAL AND RANCHING DEVELOPMENT IN WHITE PINE COUNTY AND SNAKE AND SPRING VALLEYS: 1860s-1970s

During the White Pine mining rush in the late 1860s prospectors entered eastern Nevada by the thousands, establishing mining camps and towns near the new mineral strikes. The growth of population resulting from the spreading mining development in the region created a market for agricultural and livestock products. To meet the foodstuff needs of the growing populace the first permanent Euroamerican settlers entered the area to establish farms and ranches for raising crops, including grains, fruit, and vegetables. Stockraising and dairy operations were also begun to provide beef, pork, mutton, milk, butter, cheese, and wool. Horses and mules were raised to provide work animals for the mines, farms, and transportation needs of the settlements.

By November 1866 considerable agricultural development had occurred in Lander County, out of which White Pine County would later be carved on April 1, 1869. In the *Annual Report of the Surveyor General of the State of Nevada for 1866* the stockraising and agricultural development of Lander County was described:

> There are in the county one thousand and eighty-five horses, two hundred and five mules, three thousand six hundred and fifty-seven horned cattle, one hundred and forty-two swine, one thousand five hundred and ninety sheep.
>
> In consequence of frequent frosts, apparent barrenness of the land and absence of rains, it was thought by the first settlers that little of anything could be raised or cultivated; but from the large crops of grains and vegetables that have been

11. *Biennial Report of the Surveyor-General and State Land Register, 1905-1906*, pp. 6-7, in Appendix to Journals of Senate and Assembly, State of Nevada, 1907, 23rd Session.

> successfully cultivated and gathered the past season, the doubts and fears of the inhabitants regarding agriculture have vanished, and they now feel satisfied that more than enough can be raised to supply our own wants, and for a much larger population. The products of the soil are now afforded at reasonable prices, and at much less than they can be brought from outside the county. The past season two thousand five hundred acres of grain, principally barley, together with some oats and wheat, have been raised. The yield averaged thirty bushels to the acre. Potatoes and vegetables of all the different kinds have been raised in large quantities. The crop of hay is large, and quantity cut unknown; the price is from $25 to $30 per ton. Barley is sold in the city at from five to six cents per pound. Potatoes are sold at from two to three cents per pound.[12]

Beginning about 1869 settlers began moving into Snake and Spring valleys to establish farms and ranches. They generally located near the valley bottoms where springs and snow melt out of the mountains provided water for irrigation. The valley bottoms were at a sufficiently low elevation to ensure a growing season long enough to grow a variety of crops successfully.

The *White Pine Daily News* began publishing accounts of the agricultural prospects of Snake and Spring valleys in the spring of 1869. On May 8, for instance, the newspaper reported that "Spring Valley is quite broad, of unknown length, and contains an abundance of the finest agricultural land in the Great Basin, while the foothills and mountains afford superior grazing land."[13] The following month, on June 21 and 23, the newspaper reported that "bearing fruit trees" were abundant in Snake Valley and that the valley consisted of "a large scope of agricultural country, the finest in the Great Basin."[14] Later in October the newspaper elaborated further on the growing settlement and agricultural development in Snake Valley:

> Farming in Snake Valley has come to be profitable, and numerous farms have this year been located. Large extents of fine arable land lie in and about the Valley. Sixty or seventy ranches have been located this year, and settlers are still finding land to set up their homes upon. Excellent crops of barley are grown in Snake Valley, beside abundant yields and finest quality of all kinds of vegetables.[15]

By February 1873 Snake Valley had become a small agricultural community. On February 7 the *Ely Record* reported:

> Snake Valley. This is the name of a flourishing agricultural settlement about one hundred miles north in Nye County. There are about fifteen or twenty families in the settlement with quite a number of bachelors. New locations are being made constantly. There are copious springs, canyons with small timber

---

12. *Annual Report of the Surveyor General of the State of Nevada For the Year A.D. 1866* (Carson City, 1867), p. 71.

13. *White Pine Daily News*, May 8, 1869.

14. *White Pine Daily News*, June 21, 23, 1869.

15. *White Pine Daily News*, October 16, 1869.

for fencing material, and a sawmill is being negotiated. A school district will be organized.[16]

The agricultural potential of White Pine County began to receive attention from Nevada state officials during the early 1870s. In the *Biennial Report of the State Mineralogist* for 1871-72 it was stated:

> The agricultural resources are as good as those of any other county in the State. The rich, arable lands of Steptoe, Spring, and White River Valleys cannot be excelled. They are, however, as yet, available only in producing supplies for the markets of the mining camps. When the mines give out the farms also cease yielding good crops. No section of the State affords better pasturage for stock. Many of the mountain ranges are covered from base to summit with nutritious bunch grasses.[17]

The early agricultural diversity of White Pine County was graphically described in the *Report of the Surveyor General and State Land Register* for 1871-72. The report provided estimates of livestock and agricultural produce for the county in 1871. That year there were 640 horses, 400 mules, 4,050 cattle, 3,000 sheep, and 200 hogs in the county. Of the 100,000 acres that were considered suitable for cultivation, some 10,000 acres were planted with various crops. These included: wheat (100 acres/2,000 bushels); barley (200 acres/6,000 bushels); hay (10,000 acres/4,000 tons); oats (20 acres/400 bushels); and potatoes (40 acres/6,000 bushels).[18]

The agricultural output of White Pine County increased both in size and diversity between 1871 and 1874. Contributing to the increasing diversity was the fact that as the White Pine mining rush and its aftermath subsided the farmers and ranchers lost their produce, vegetable, and dairy markets, thus forcing them to turn to livestock production and feed crops for economic survival.[19] By 1874 some 4,500 acres of farm land in the county were fenced, more than 3,000 acres were planted in row crops, and 8,000 acres were producing hay. Some 60 irrigation ditches provided for more than 3,000 acres of irrigated land in the county. Among the principal crops raised were: wheat (400 acres/10,000 bushels); barley (2,000 acres/70,000 bushels); oats (400 acres/12,000 bushels); rye (100 acres/1,000 bushels); corn (60 acres/800 bushels); peas (20 acres/200 bushels); beans (20 acres/240 bushels); potatoes (400 acres/30,000 bushels); onions (10 acres/120 bushels); hay (8,000 acres/6,000 tons); beets (11 tons); turnips (73 tons); and pumpkins and squash (50 tons). In addition, county farms produced 20,000 pounds of butter, 4,000 pounds of cheese, and 18,000 pounds of wool.

Fruit production was a fledgling part of the White Pine County farm economy by 1874. There were 50 apple trees, 100 peach trees, 35 pear trees, 50 cherry trees, and 30 gooseberry bushes.

By 1874 there were nearly 14,000 head of livestock in the county. These included: 1,029 horses; 140 mules; 18 asses; 1,882 cows; 2,700 calves; 5,970 beef cattle; 2,500 sheep;

---

16. *Ely Record*, February 7, 1873, printed in Read, *White Pine Lang Syne*, p. 135.

17. *Biennial Report of the State Mineralogist of the State of Nevada For the Years 1871 and 1872*, p. 143, in Appendix to Journals of Senate and Assembly, State of Nevada, Sixth Session.

18. *Report of the Surveyor General and State Land Register of the State of Nevada For the Years 1871 and 1872*, pp. 9-18, in Appendix to Journals of Senate and Assembly, State of Nevada, Sixth Session.

19. Creel, *History of Nevada Agriculture*, p. 14.

3 cashmere and angora goats; and 350 hogs. Other animals raised included 2,000 chickens, 125 turkeys, 40 geese, and 80 ducks. It was estimated that there were 500,000 acres of land in the county suitable for grazing.[20]

Agricultural development and diversity increased in White Pine County during the 1870s. While stockraising continued to be the most prominent part of the county agricultural industry, there was a shift in the type of livestock raised from cattle to sheep during that decade. By the mid-1870s much of the county was overgrazed by cattle and horses. Thus, many ranchers turned to sheep because they could survive and even prosper on the overgrazed lands.[21]

By 1880 some 13,120 acres of White Pine County farmland were fenced, and 2,175 acres were under cultivation. The crops raised included: wheat (107 acres/3,610 bushels); barley (1,406 acres/40,512 bushels); oats (211 acres/5,586 bushels); rye (25 acres/176 bushels); corn 915 acres/420 bushels); peas (5 acres/100 bushels); beans (4 acres/90 bushels); potatoes (336 acres/24,862 bushels); onions (3 acres/ 90 bushels); cabbage (6 acres/24 tons); carrots (5 acres/20 tons); parsnips (1-1/2 acres/6 tons); and tomatoes (1-1/2 acres/3 tons). In addition, some 5,871 acres produced 4,224 tons of hay, and county farmers produced 11 tons of beets, 20 tons of turnips, 21,600 pounds of butter, and 24,540 pounds of wool.

Fruit production in the county had also become more extensive by 1880. There were 145 apple trees, 25 peach trees, 15 pear trees, 20 plum trees, and 10 cherry trees. In addition, there were 200 gooseberry bushes, 400 raspberry vines, and 6,000 strawberry vines.

Livestock raising, however, continued to be the most prominent aspect of White Pine County agriculture. In 1880 there were 2,000 horses, 400 mules, 75 asses, 3,000 cows, 1,800 calves, 2,000 beef cattle, 200 oxen, 100 bulls, 10,000 sheep and lambs, 340 hogs, 4,000 chickens, 200 turkeys, 4 geese, and 42 ducks in the county. Two beehives produced 60 pounds of honey.

Irrigation continued to be critical to the ongoing development of agriculture in the county. In 1880 some 75 irrigation ditches extending for 140 miles in length provided for 8,500 acres of irrigated lands.[22]

In his *History of Nevada* published in 1881 Myron Angel commented on the agricultural development of White Pine County since its establishment in 1869. He observed:

> The discovery of mineral wealth had the effect to develop the agricultural resources of the county, which were before unknown. The fertile lands of Spring, Steptoe and Snake Valleys were sought out and brought into requisition, and made to supply the mining camps with every cereal, vegetable and fruit which a northern climate can produce. The mountain ranges furnished abundance of wood and timber, and the frequent springs and streams upon their sides and at their base rendered thousands of acres valuable for grazing. The surplus waters of the mountain streams, by means of irrigating ditches,

---

20. *Report of the Surveyor General and State Land Register of the State of Nevada For the Years 1873 and 1874*, pp. 21-31, 34, 37, in Appendix to Journals of Senate and Assembly, State of Nevada, Seventh Session.

21. Sawyer, *Nevada Nomads*, pp. 18-22; Wentworth, *America's Sheep Trails*, pp. 218-22; and Clel Georgetta, *Golden Fleece in Nevada* (Reno, Venture Publishing Company, 1972), pp. 304-07.

22. *Report of the Surveyor General and State Land Register of the State of Nevada For the Years 1879 and 1880*, pp. 46-59, 63, in Appendix to Journals of Senate and Assembly, State of Nevada, 10th Session.

were turned upon the dry and barren fields, which were thereby made to blossom and bear fruit.

Concerning the agricultural resources of Spring and Snake valleys in 1881, Angel noted:

> SPRING VALLEY commences near the southern boundary line of the county, and ends near the northern boundary line. Its length is about 100 miles, and its width 12. Its northern portion is well watered by numerous small creeks, all of which run long enough for irrigation in the spring, and many of which are living streams. It contains about 25,000 acres of good arable soil that can be irrigated. Its white population numbers about 150 persons.
>
> SNAKE VALLEY lies east of the Snake range, the State line passing through it. About 350,000 acres of it are in this county, of which 10,000 are tillable. It is chiefly devoted to stock-raising. Its slope being to the south and east, its climate is warmer than that of most portions of the county, and large quantities of tomatoes and other vegetables are successfully cultivated.[23]

Agricultural development continued in Snake and Spring valleys during the late nineteenth century. On July 31, 1886, for instance, the *White Pine Daily News* reported that they were "two of the most prolific valleys in the State." Farmers were producing "an over-abundance of hay, grain, and all kinds of vegetables and small fruits" which were "sold at cheaper rates than the same products command in California."[24]

In 1894 the agricultural and stockraising opportunities in White Pine County were praised in a publication prepared by the Nevada State Bureau of Immigration. While the avowed purpose of such brochures was to attract investors and settlers to the state, the pamphlet provided insights into the state of agriculture in the county just prior to the turn of the century as well as the hopes and aspirations of the state's boosters. The brochure, entitled *Nevada and Her Resources*, described the existing condition and potential of White Pine agriculture and the need for better and more efficient transportation to aid area farmers and stock raisers:

> White Pine county is situated at the extreme eastern side of the State, about midway between the northern and southern boundaries. It has an area of 8,885 square miles, or nearly 5,700,000 acres, and comprises a number of valleys separated by mountain ranges, extending from north to south, some of which are from 11,000 to 12,000 feet in height, while the highest peaks reach an altitude of almost 13,000 feet. These high mountains receive a very heavy precipitation of snow, which, melting, yields a large volume of water that flows down into the valleys, moistening the ground and producing excellent range for stock, besides furnishing a supply for irrigation, but a portion of which is yet utilized. Hitherto the absence of transportation facilities – there are no railroads entering the county – has retarded development in this portion of the State. As a consequence, mining and stock raising, with only sufficient farming to supply local demands, have occupied the entire attention of the people, and it is chiefly as a mining county that White Pine has been known in the past.

---

23. Angel, *History of Nevada*, pp. 648, 652.

24. *White Pine Daily News*, July 31, 1886.

The brochure went on to state that stockraising is

> an important industry in White Pine county, and some of the best ranges of the State are located here. In the valleys and on the lower mountain ranges and foothills all the grasses that grow in the northern part of the State are abundant, while in almost every part of the county the white sage and browse, which afford excellent winter feed, are to be found. Besides the stock owned in the county, thousands of head of sheep are annually driven from Elko county and further north to winter in the valleys of White Pine, where the snowfall is always very light and the feed good.
>
> As before stated, owing to the lack of railroads in the county and the consequent cost of transportation to markets, agriculture is not carried on beyond the supplying of the local mining camps with required farm produce, except in the way of raising hay and other forage for stock. However, with its numerous large and rich valleys, and comparatively large water supply, White Pine is destined at no distant day, when railroads have penetrated this portion of the State, to become a fine farming district. The principal agricultural valleys are Snake, Spring, Antelope, Steptoe, Sierra or White River, Butte, Newark and Gilson's valleys. They comprise in the aggregate about 1,600,000 acres of rich alluvial land, not more than two per cent of which is now under irrigation, though the surface waters which can be made available is amply sufficient to properly serve fully 400,000 acres, and the indications are favorable for a large artisan supply.
>
> Though most of these valleys are at an elevation of between 5,000 and 6,000 feet above sea level, many of them are on the southern slope of the great basin plateau, and opening to the south, receive the warm currents of air that blow across the Colorado desert and up the Colorado river. Thus they have a milder climate than many parts of the inter-mountain region having a much lower altitude. So many varieties of fruits, such as peaches and apricots, besides the more hardy ones, do well here, and are sure of bearing. The soil generally is the same as is found in the other valleys of the State, and wherever cultivated yields enormous crops.[25]

Despite several disastrous winters followed by periods of drought, agricultural statistics for White Pine County in 1890 and 1900 reveal general growth and diversification during the latter years of the nineteenth century. The number of acres enclosed by fencing increased from 15,000 in 1890 to 50,000 in 1900, while the acreage under cultivation, which had been 2,175 in 1880, remained at 10,000 both in 1890 and 1900. With several exceptions there was an expansion in output of virtually all row crops between 1890 and 1900:

---

25. Nevada State Bureau of Immigration, comp., *Nevada and Her Resources: A Brief Sketch of the Advantages and Possibilities of the State, and the Opportunities and Inducements Offered to Capitalists and Homeseekers* (Carson City, State Printing Office, 1894), n.p.

	1890	1900
wheat	100 acres/3,000 bushels	200 acres/200 tons
barley	800 acres/30,000 bushels	400 acres/400 tons
oats	300 acres/11,000 bushels	300 acres/200 tons
corn	20 acres/800 bushels	20 acres/15 tons
rye	–	5 acres/4 tons
peas and beans	2 acres each	20 tons
potatoes	40 acres/4,000 bushels	400 acres/1,200 tons
onions	2 acres	6 acres/5 tons
cabbage	10 acres/8 tons	5 acres
carrots	10 acres	10 tons
parsnips	2 acres	5 tons
tomatoes	1 acre	5 tons
beets	20 tons	40 tons
turnips	10 tons	50 tons

While hay production declined from 7,000 acres/7,000 tons in 1890 to 5,000 acres/5,250 tons in 1900 and butter production decreased from 10,000 pounds to 3,000 pounds, wool increased from 140,000 pounds to 183,235 pounds.

Fruit production in White Pine County multiplied several times over between 1890 and 1900, the greatest expansion occurring in the planting of apple and peach trees and strawberry vines. Statistics for this period are:

	1890	1900
apple trees	100	2,000
peach trees	100	2,500
pear trees	50	50
plum trees	20	150
cherry trees	20	40
nectarine trees	20	0
apricot trees	10	80
gooseberry bushes	1,200	500
raspberry vines	0	500
strawberry vines	1,200	20,000
currant bushes	2,400	600
grape vines	0	500

Livestock raising, however, continued to be the mainstay of the agrarian economy in White Pine County during the late nineteenth century. Statistics for the period show that there was a slight decline in sheep raising accompanied by a major increase in cattle raising between 1890 and 1900. Statistics for those years indicate:

	1890	1900
horses	3,000	2,000
mules	100	100
asses	25	50
cows	300	400
calves	250	350
beef cattle	1,000	0
stock cattle	7,000	15,321
oxen	20	4

bulls	300	500
sheep and lambs	35,000	30,000
hogs	200	300
chickens	1,000	3,500
turkeys	200	100
geese	50	20
ducks	200	225

Available statistics show that blooded stock were an integral part of the livestock industry in White Pine County by 1890. There were 10 Percheron, Clydesdale, and Norman horses in the county that year, each valued at $300 per head. Blooded cattle included six breeds and 160 head valued at $80 per animal. The six breeds were: Holsteins (20); Durhams (40); Polled Angus (20); Herefords (60); Galloways (10); and Devons (10). Comparative statistics for blooded stock in 1900 could not be found.

Accompanying the growth of agriculture in the county was the expansion and construction of irrigation ditches. In 1880 there had been 75 ditches extending some 140 miles providing for 8,500 irrigated acres. By 1900 there were an estimated 500 ditches extending some 1,000 miles that watered approximately 10,000 acres of land.[26]

In 1906 the U.S. Forest Service surveyed portions of eastern Nevada looking for areas that had potential as national forests. An area embracing "a strip of country 50 to 60 miles wide along the Utah State line in eastern Nevada, between the Lincoln County line and the Central Pacific R.R." was investigated by Forest Expert L. Von Wernstedt. During the course of his examination he made observations on the range conditions and agricultural prospects of the Egan, Schell Creek, and Snake ranges as well as their adjacent valleys. Among other things he noted:

> In the early days this country was used by large numbers of cattle and the range then became much over-stocked. Later on and at the present time, sheep have been using the range in addition to local cattle belonging to settlers. The effect of the sheep has been the killing out of the bulk of the grass in the valleys. The main feed in the valleys is now winterfat or, as it is locally called, white sage (*Puritala lanata*). In addition the sheep feed to a great extent on various kinds of brush, greasewood (*Sarcobatas*), shadscale (*Atroplex*), and several kinds of rabbit brush (*Bigalovia*), as well as on the ordinary black sage (*Artemesia*). Even the brush has now frequently become stunted. The country is also subjected to periods of drought which hurt the ranges and force temporary reductions of stock. The winterfat is most abundant in the valleys along the base of the mountains where it frequently forms a belt generally one to two miles wide to the exclusion of other vegetation except some scattering grass. This belt is easily distinguished for long distances by its light gray coloring. In the valleys . . . there are meadow areas of some extent. Part of these areas are grass lands, part are greasewood bottoms, and part of them are occupied by dry lakes or salty areas without much vegetation. They are generally wet in the spring and dry out in the summer.
>
> The valleys, as a rule, are used as winter range and the mountains as summer range. As said before, some of the mountains and parts of all of them are not used at all on account of lack of water. . . . All the other mountains are

26. *Report of the Surveyor-General and State Land Register of the State of Nevada For The Years 1889 and 1890*, pp. 168-78, 180, 183, 187, 190, in Appendix to Journals of Senate and Assembly, State of Nevada, 1891, 15th Session, and *Biennial Report of the Surveyor-General and State Land Register, 1899-1900*, pp. 46-53, 56, in Appendix to Journals of Senate and Assembly, State of Nevada, 1901, 20th Session.

unevenly used for summer range and wherever used they are over-stocked. The best watered mountains are the central part of the Shell Creek range and the central part of the Snake range. There is a general movement south of sheep in winter time through the valleys. About 200,000 sheep additional enter the country in the fall, passing out in the spring. Those come in through the valleys west of Spruce, through Independence Valley, through Cobre, Ferguson Spring, and Depp Creek, and range in the valleys north of Shellbourne, Copper Ranch, and Cougars. They summer in Ruby Mountains and Bruno Mountains, in Utah and in Idaho. Besides there are several smaller local sheepmen and one big local sheepowner, McGill & Adams of Ely.

The settlements are entirely confined to streams and springs, and nothing is raised without irrigation. The main settlements are east and west of the central part of Shell Creek range and east of the Snake range.

Wernstedt also made specific observations on the status of ranching and farm development in Snake Valley and range conditions in the Snake Mountains. He noted:

There are 25 ranches, most of them in Snake Valley, that depend on the water from the Snake range. These ranches have an approximate area of 7,000 to 8,000 acres of which 2,500 acres are in grain or alfalfa, and the balance is irrigated pasture. Potatoes, wheat, oats, alfalfa, barley, wild hay are raised, and in Snake Valley, fruit, peaches, pears, prunes, plums, grapes, etc. Improved farm land is valued at $25 an acre.

The number of cattle and sheep owned by these ranches and depending on the Snake range is approximately 22,000 sheep owned by 8 men, and 3,300 cattle; most of the sheep are run on Mt. Moraja. It does not seem probable that farming will ever be carried on to a much greater extent in the future than at the present as all depend on the limited water supply which could not be materially increased or the flow greatly retarded, and the growing season is short for possible dry farming development. There is some complaint about the affect of the lumbering operations and the sheep in relation to the stream flow, and the range here as elsewhere is over-stocked. It is not believed that the lumbering up to the present has injured the supply but evidently the forests on the Snake range are acting effectively as a protection to the water supply and if cut a great change would be noticeable. The creeks have a greater volume before they emerge from the mountains than at the place where they are used. Fluming would increase the acreage some. There are pipe lines conveying water from the canyon immediately north of Wheeler Peak to Osceola on the east side and also pipe lines from the canyon five miles north of Shoshone to Osceola on the west side, both for the Osceola placers. There are no good reservoir sites in these mountains and a great deal of water in the early spring goes to waste. The cattle generally work up in the mountains in the latter part of June and the poorest of the cattle are fed in the winter; others stay on the snow on the foothills. The south side of the Snake range is not used much on account of scarcity of water and the west side is generally too steep. Above the timber line there is a great deal of barren country and nowhere was there very much grass observed. Above 9,500 feet there are thickets of manzanita. The flat top of Mt. Moraja is said to be excellent sheep range.[27]

---

27. "Report on the Proposed Ely, Steptoe, Osceola, and Snake National Forests, Nevada, by L. Von Wernstedt, Forest Expert, Forest Service, 1906, General Land Office, Division "R," National Forests, Nevada, Record Group 49, Records of the Bureau of Land Management, National Archives and Records Administration, Washington, D.C.

Despite the obstacles to agricultural and grazing development in eastern Nevada, farming and ranching expanded markedly in White Pine County between 1900 and 1910. The construction of the Nevada Northern Railroad into Ely, the development of the copper mines at Ruth, and the erection of the McGill Smelter early in the century put new life into both farming and stockraising throughout the area. Distances were cut down for trailing cattle to the railhead. Intensive farming operations were again resumed in the White River Valley at the Mormon settlements of Lund and Preston.[28]

Between 1900 and 1910 the number of farms in White Pine County increased from 163 to 203, with 17 farms exceeding 1,000 acres in size. The amount of acreage in farms increased from 85,075 to 109,631, and improved land in farms more than doubled from 34,448 acres to 77,833 acres. In 1910 1.9 percent of county land was in farms, and 71 percent of the farm land was improved. The average number of acres per farm was 540.1, and the average number of improved acres per farm was 383.4. The value of all farm property increased 147 percent during 1900-10 from $970,077 to $2,395,690.

Irrigation continued to be a major factor in White Pine County agricultural development. During the years 1900 to 1910 the number of county farms using irrigation water increased 10.8 percent. Of the 203 county farms in 1910, 164 or 80.8 percent were irrigated with an aggregate acreage of 32,795. The irrigation water was supplied from two principal sources – streams by gravity (26,268 acres) and springs (6,507 acres).[29]

In 1911 the U.S. Forest Service surveyed Nevada National Forest and its environs for the purpose of recommending additions and eliminations to the Snake Division and the northern portion of the Schell Creek Division. During the course of their investigation Forest Service officials made observations on the farming and grazing conditions in the area. Ranches in the vicinity of the two divisions totaled some 10,000 acres. Farming and grazing were considered the second and third most important industries in the area behind mining:

> While at present most of the farming consists in raising hay and grain, by stockmen, at their ranches, to feed stock over winter, the amount of land under cultivation is very small, compared to what can be used. Spring valley and Snake Valley – the valleys to the sides of the Moraja and Snake ranges – are broad valleys, with abundance of rich soil; and, with better utilization of water resources, adaption of crops, and improved agricultural methods, a very large acreage should be brought under cultivation, and a splendid market for the crops will be had.
>
> There will always be a large amount of open valley land and mountain wooded land available for raising stock on the range. At present about 24,000 sheep

---

28. Creel, *History of Nevada Agriculture*, p. 14.

29. U.S. Department of Commerce and Labor, Bureau of the Census, *Thirteenth Census of the United States Taken in the Year 1910: Statistics For Nevada* (Washington, Government Printing Office, 1913), pp. 590, 605, 607, 609-10, 612, 617, 620, and *Biennial Report of the Surveyor-General and State Land Register, 1909-1910*, pp. 55-62, 66, in Appendix to Journals of Senate and Assembly, State of Nevada, 1911, 25th Session, Vol. I. For further information on the history of water development in the Snake Valley during the twentieth century see State of Nevada, Department of Conservation and Natural Resources, *Water Resources – Reconnaissance Series, Report 34, Water Resources Appraisal of the Snake Valley Area, Utah and Nevada*, by James W. Wood and F. Eugene Rush, November, 1965, and U.S. Geological Survey in Cooperation with the Utah State Engineer and the Nevada State Engineer, *Utah State Engineer Technical Publication No. 14, Water-Resources Appraisal of the Snake Valley Area, Utah and Nevada*, by James W. Hood and F. Eugene Rush, 1965.

and 1,900 cattle use the range included in the present Forest, along with that in the proposed additions.[30]

During the same year in which Forest Service officials were conducting their surveys a newspaper reporter from Millard County, Utah, described Snake Valley as being "rich in natural resources" and having "wonderfully productive soil." The valley, however, was "sparsely settled" because of the "lack of transportation facilities." Elaborating further, the writer noted:

> It is a fine section for stock. It lies just west of the deseret that furnishes writer pasture while the ranches provide pasture and hay for summer feeding.
>
> The settlement of Burbank at the south end of Snake Valley consist of nine ranches comprising something like 2000 acres on which hay and grain is raised, much of the land being also used for pasture for horses and cattle. Hardy vegetables of all kinds are also grown as well as small fruits.
>
> The valley is watered by a beautiful stream known as Lake Creek, having its rise in Big Spring and a number of smaller springs located over the Nevada line.
>
> Ten miles north of Burbank is the little settlement of Garrison comprising about a dozen families.
>
> Large crops of hay, grain, vegetables, alfalfa seed and some fruit are raised here. Most of the ranches are watered from the reservoir to the south, but two or three are watered by Snake Creek, a stream rising in the mountain to the west.[31]

During the pre-World War I years there was a resurgence in agricultural development in White Pine County following several years of decline after the turn of the century. In his *History of Nevada* published in 1913 Sam P. Davis described this renewal of agricultural activity and summarized the prospects for future growth:

> For a long period the agricultural possibilities of the county were neglected, but the "Back to the Soil" movement has been given considerable impetus in recent years. Although numerous homesteads have been taken up lately, there are still thousands of acres of farming land yet uncultivated. Unfailing streams furnish a dependable water supply, the crops are certain, and the best market in the State exists in the Ely district. The development of a market within easy reach has resulted in renewed activity throughout the farming communities, and the county in general is more prosperous now than at any time since the White Pine district was in the halo of its glory.
>
> The high mountains in the county receive a heavy precipitation of snow, and yield a large amount of water that flows down into the valleys, moistening the ground, producing excellent range for stock, and furnishing a good supply for irrigation. Fruit-raising is no longer an experiment. One of the richest and

---

30. "A Report For Additions to and Eliminations From the Snake Division and the North End of the Schell Creek Div. of the Nevada National Forest," March 16, 1911, L-Boundaries, Nevada, 1911, Record Group 95, Records of the U.S. Forest Service, National Archives and Records Administration, San Francisco Branch, San Bruno, California (Accession No. 74A-240/Location No. 9539).

31. Unidentified Newspaper Clipping, March 23, 1911, Vertical Files, Great Basin National Park.

> finest apple sections in the State is in Snake Valley. Many varieties of fruit such as peaches and apricots do well here, and are sure of bearing. It is claimed that there has not been a complete failure of the fruit crop in this section for more than thirty years. Stock-raising has been an important industry in the county, and some of the best ranges in the State are located here. . . . Besides the stock owned in this county, thousands of sheep are annually driven from Elko county and farther north to winter in the valleys of White Pine, where the snowfall is always light, and the feed good.[32]

Livestock raising and ranching development increased markedly during World War I, stimulated both by the rising demand for meat and wool as a result of the war and the expanding mining operations at Ruth. While the cattle industry declined, sheep raising grew by a significant margin. In 1920 the totals and values of livestock raised in the county, as reported by the Nevada Tax Commission, were:

	Total	Value per Head
cattle	10,662	$ 37.00
bulls	380	102.76
milch cows	477	75.00
work horses	746	77.18
saddle horses	293	54.00
stock horses	614	13.00
stallions	7	271.00
work mules	71	85.00
stock mules	55	50.00
jacks	3	206.00
burros	53	10.00
goats	20	3.50
sheep	131,228	8.00
bucks	2,177	12.00
hogs	327	15.00
pigs	228	5.00
poultry	2,600	.53[33]

Falling demand and prices for agricultural and livestock products during the 1920s and the stock market crash in October 1929 left White Pine County farmers and ranchers in a precarious condition by 1930. In that year county livestock totals, according to the Nevada Tax Commission, were:

	Total	Value per Head
stock cattle	6,357	$ 28.00
bulls	221	53.73
milch cows	162	120.50
horses (1,100 lbs. and up)	573	51.72
work horses (under 1,100 lbs)	491	32.50
saddle horses	319	41.50
stock horses	334	5.00
stallions	3	100.00

32. Sam P. Davis, ed., *The History of Nevada* (Reno, The Elmo Publishing Company, 1913), pp. 1,059-60.

33. *Biennial Report of the Nevada Tax Commission, 1919-20*, pp. 68-73.

brood mares	25	30.00
burros	73	10.00
sheep	113,176	8.00
bucks	1,176	10.00
goats	487	4.00
hogs (over 8 months)	331	10.00
pigs (under 8 months)	28	5.00
poultry	1,248	.31
bees	30	5.00
foxes	54	50.00[34]

During the early and mid-1930s sheep raising continued to decline in White Pine County, while cattle raising showed a marked rebound. By 1935 county ranches owned 101,730 sheep, or nearly 18 percent of the state's total. That same year it was reported that there were 12,969 cattle in the county, or nearly 5-1/2 percent of the state's total.[35]

Drought conditions and grasshopper infestations resulted in a serious decline in agricultural production in White Pine County during 1934-35. Severe rain shortages in 1934 resulted in a severe decline in fruit production, particularly in peach orchards around Baker and in peach and apple orchards in Spring Valley. During 1935 grasshopper infestations occurred on crop lands in Spring, Steptoe, Lake, and Snake valleys and on range lands in the Snake and Mount Moriah divisions of Nevada National Forest. The Baker area was especially hard hit by the infestation. White Pine County received quantities of bran and poison through a special appropriation passed by Congress. The infestation was thus controlled, saving "ranchers of the county many dollars in feed produced on crop and range lands."[36]

The most significant piece of New Deal legislation for Nevada ranchers was the Taylor Grazing Act of 1934. The entire West was suffering from drought and depleted forage and water conditions. There had been a catastrophic drop in the price paid for livestock, declining some 50 percent between 1931 and 1933. In some areas livestock raisers felt forced to make greater use of the open range, although some public lands were already overgrazed. Recognizing that existing land laws were inadequate to bring about orderly utilization and preservation of the public lands, Congress passed the Taylor Grazing Act to provide a system for managing federal grazing resources and preserve the long-term productivity of the public domain under the Department of the Interior. Grazing was to be regulated through establishment of grazing districts and issuance of grazing permits for the purpose of stopping "injury to the public grazing lands by preventing overgrazing and soil deterioration," providing "for their orderly use, improvement, and development," and stabilizing "the livestock industry dependent upon the public range."

Subsequently, six grazing districts were established in Nevada. These districts were:

No. 1 – Elko County – April 8, 1935
No. 2 – Humboldt, Pershing, and Upper Washoe counties – October 18, 1935

---

34. *Biennial Report of the Nevada Tax Commission, 1929-30*, pp. 25-31.

35. Sawyer, *Nevada Nomads*, p. 78.

36. "Annual Narrative Report, 1935, by C.R. Townsend, County Extension Agent, For the Period of November 1, 1934, to October 31, 1935, Ely, Nevada," pp. 22-23, and University of Nevada, Agricultural Extension Division, White Pine County, Nevada, "Annual Report for the Period From November 1, 1934 to October 31, 1935," Hellen M. Gillette, District Extension Agent, p. 8, Manuscripts Division, Bancroft Library, University of California, Berkeley.

No. 3 – Storey, Ormsby, Douglas, Lyon, Mineral, and portions of Washoe and Churchill counties – November 3, 1936
No. 4 – White Pine County and portions of Lincoln County – November 3, 1936
No. 5 – Clark County – November 3, 1936
No. 6 – Lander, Eureka, and Nye counties – February 9, 1951[37]

By 1939, however, the state of farmers in White Pine County had become bleak. It was reported that there were 168 farms in the county. Many of these families were of Spanish and French Basque extraction. They were "deeply in debt, because of unwise expansion or investments, or because of drought and a fall in the commodity prices." A large number of the farmers had "been forced on the W.P.A." for economic survival.[38]

The state of Nevada and White Pine County agriculture and stockraising as well as the impact of the Taylor Grazing Act on range management were summarized in *Nevada: A Guide to the Silver State* in 1940. Compiled by the Writers' Program of the Works Projects Administration, the book contained the following observations on Nevada farming and ranching:

> Fourteen of Nevada's counties derive a major part of their income from stock-growing and from farming – principally the production of wild hay, alfalfa, and some grain, all for cattle-feeding. In many counties cattle and sheep are of almost equal importance.
>
> The large ranches are chiefly in Elko, Humboldt, Eureka, and White Pine counties, with acreages running from six thousand to more than one hundred thousand acres. But the privately owned lands of the State comprise only about one-seventh of the total, the cattle ranches being principally meadow along streams, some winter range, and varied lands ensuring control of water. Nearly all the grazing area is public domain. The United States Forest Service administers most of the higher lands, where stock is summered, and the United States Grazing Service the remainder. All grazing on the public lands is now carried on by individual permits specifying the number of stock that can be taken into an area and the length of time the herds and bands may remain. The fees charged for use of the public lands are usually less than the tax assessments on adjoining privately owned tracts. To a considerable extent, priority on the use of areas belongs to the outfits that can prove they have used them for a number of years, and cattle and sheep men are busy amassing affidavits from prospectors and other nomads to prove long continued use of this and that valley, slope, and water-hole, in hope of obtaining permits for more than one season at a time.[39]

---

37. Nevada State Office, Bureau of Land Management, *Taylor Grazing Act In Nevada, 1934-1984* ([Reno], 1984), n.p., and University of Nevada, Agricultural Extension Service, *Bulletin 77, Setting Up Taylor Grazing Districts In Nevada*, by Thomas E. Buckman, June 30, 1937, pp. 1-139. To administer the lands in the grazing districts a Division of Grazing was established in the Department of the Interior in January 1935. On August 26, 1939, the division was renamed the Grazing Service. In 1946 the General Land Office and the Grazing Service merged to form the Bureau of Land Management.

38. Virginia Starkweather, "Social Security in Nevada, IV: In White Pine County, Nevada," *Proceedings of the National Conference of Social Work, 1939*, 483-84, and Virginia Starkweather, "Prospecting for Social Security," *Survey Midmonthly*, LXXV (October 1939), 311.

39. Writer's Program of the Works Projects Administration, *Nevada: A Guide to the Silver State* (Portland, Oregon, Binfords & Mort, 1940), pp. 64-65.

World War II and the immediate postwar years resulted in a rising demand for agricultural products. Thus, the 1940s saw a steady growth in agricultural production in White Pine County. While cattle raising nearly doubled during the decade, sheep raising declined by one-third. Between 1940 and 1950 the number of acres under cultivation in the county increased from 4,844 to 9,808. During the same period lands classified as meadow and wild hay increased from 4,346 to 4,647, as pasture from 9,707 to 15,846, and grazing from 61,177 to 100,682. The numbers and value of livestock increased as follows:

	1940		1950	
	No.	Value per Head	No.	Value per Head
stock cattle	64,078	$ 22.50	13,066	$ 34.48
bulls	174	50.00	441	77.04
milch cows	667	42.58	625	52.25
horses (1,100 lbs. and up)	42	80.00		
work horses (under 1,100 lbs.)	422	50.00		
work horses			288	48.95
saddle horses	219	50.00	299	47.86
stock horses	290	20.00	366	19.23
stallions	5	85.00	9	100.00
work mules	7	75.71		
stock mules	3	20.00		
burros	21	10.00	2	10.00
sheep	64,078	4.00	42,600	6.45
bucks	764	10.00	455	15.00
goats	674	4.00	213	4.88
hogs (over 8 months)	98	10.00	155	10.00
pigs (under 8 months)	111	4.00	274	5.00
poultry	2,225	.43	3,383	.50
bees	40	3.00	6	2.00[40]

By the mid-1950s the number of farms in White Pine County had decreased, while the size of the farms and the acreage harvested and irrigated had increased. In 1954, for instance, a special Nevada agriculture census found that there were 148 farms comprising 259,609 acres. This acreage amounted to 4.6 percent of the total land in the county. Some 22,283 acres were irrigated, and 17,610 acres were harvested. The average farm was 1,754 acres, and the average number of acres per farm being irrigated was 150.6 and harvested was 119. In terms of farm types the 148 farms were classified as livestock (95), general (16), dairy (5), poultry (5), and miscellaneous/unclassified (27).

In 1954 hay continued to be one of the principal crops in White Pine County. The types of hay harvested were:

Alfalfa – 8,196 acres/16,733 tons
Clo-Tim Mixtures – 145 acres/228 tons
Small grains cut for hay – 274 acres/473 tons
Wild hay cut – 7,598 acres/6,687 tons

40. *Annual Reports of the Nevada Tax Commission, 1940*, pp. 18-29, and *1950*, pp. 30-40.

Other hay cut – 30 acres/30 tons
Total – 16,243 acres/24,151 tons

Small grains continued to be a minor factor in White Pine County agriculture in 1954. The totals for such crops were:

Wheat – 171 acres/4,511 bushels
Oats – 403 acres/7,497 bushels
Barley – 530 acres/14,900 bushels

Livestock totals for the county were higher in 1954 than they had been for some years. The types and number of livestock raised were:

Cattle and calves – 25,012
Milk cows – 642
Horses and mules – 1,236
Hogs – 612
Sheep and lambs – 77,132 (wool shorn – 610,215 pounds)
Chickens (4 months and over) – 6,825
Turkeys – 312
Ducks – 63

The value of all farm products sold by White Pine County farmers in 1954 totaled $1,807,111, or about 5-1/2 percent of the state's total. The statistical breakdown for this total was:

Dairy products – $125,652
Poultry and poultry products – $24,333
All other livestock and livestock products – $1,623,436
Crops – $33,440
    Field Crops – $29,258
    Vegetables – $2,500
    Fruits and Nuts – $1,682

The average value of land and buildings per farm was $44,100, while the average value per acre of land in farms was $23.51.[41]

The need for adequate water supplies has continued to be critical to the livestock industry in Snake and Spring valleys. As part of the Soil and Moisture Conservation Program of the Department of the Interior, the U.S. Geological Survey conducted hydrological studies of stock water development in the Ely Grazing District in 1963. Concerning Snake Valley the study stated:

> The Nevada part of Snake Valley consists of two embayments, one near Baker in White Pine County, and a second in Lincoln County between the Snake Range and the Wilson Creek Range. The valley is drained and opens to the Great Salt Lake Desert of Utah.

41. E.E. Wittwer, *Nevada Agriculture: Bulletin 210* (Reno, University of Nevada, Max C. Fleischmann College of Agriculture), May 1960, pp. 12-19, 30-31, 34-35, 52-59, 66-71, 84-85, 94-95.

STOCK-WATER SUPPLIES

Wells and springs are used to furnish water for stock and for irrigation. Most of the valley is well watered except for an area between the State line and the White Rock Mountains.

SPRINGS

Fourteen springs in Snake Valley and the adjoining mountains are listed. . . . These range from small seeps that provide water for a few cows to Big Spring . . . which has an estimated discharge of 9 or 10 cfs. Big Spring is used for irrigation.

WELLS

Eleven wells have been dug or drilled in the Nevada part of Snake Valley, and about 35 have been drilled in the Utah section.

Wells in the valley fill range in depth from 70 feet to 240 feet and in depth to water from 26 feet in 175 feet.

Both embayments are well supplied with water. If additional water is required on the valley floor, well sites can be located on the basis of conditions found in nearby wells.

The study included data on the hydrology stock water development in Spring Valley. Among other things, it stated:

Spring Valley is a topographically closed, hydrologically undrained basin in which the water table is close to the land surface. The valley is filled with alluvium interbedded with lacustrine sedimentary deposits that accumulated during the Pleistocene and Recent epochs.

Drainage is toward the playa on the valley floor, but the waters of many of the spring-fed streams from the mountains are lost by evaporation or by seepage on the alluvial fans.

STOCK-WATER SUPPLIES

Wells, springs, reservoirs, and mountain streams furnish water for stock. In addition, spring-fed streams furnish irrigation water along both sides of the valley.

SPRINGS

Springs, mostly arising either along the outer margins of the alluvial fans or in the mountains, furnish small to medium amounts of water for ranch and stock use. The range of use of several springs has been increased by pipelines from the springs to areas where the water is needed.

RESERVOIRS

Stock reservoirs play only a minor part in the water economy. Ten stock reservoirs have been built in the valley in addition to two irrigation reservoirs that are open to stock.

> Thirty-four wells have been drilled or dug. Most of these provide water for stock use but some supply irrigation or mining needs. Spring Valley has been explored for water about as thoroughly as any similar area in the district, and successful wells seem to have been obtained wherever attempted.[42]

According to a study of Nevada's economic profile conducted by the Bureau of Land Management in 1974, White Pine County was "little dependent on the agricultural industry." Only 3.4 percent of the county's total income or approximately $777,000 originated from farming and ranching. In 1969 the value of all agricultural products sold (cash receipts) in the district amounted to $2,500,000, an amount that comprised 3 percent of the state's total and was the smallest county total in Nevada. Meat animal production accounted for more than 85 percent of the total agricultural production of the county, compared to a state average of 75 percent.[43]

EARLY SETTLERS AND RANCHING OPERATIONS IN SNAKE VALLEY

The purpose of this section will be the presentation of documentary materials on the early settlers and ranching operations in Snake and Spring valleys.

Samuel Hockman

Although documentation is somewhat inconclusive local accounts generally agree that the Samuel Hockman family was the first to settle permanently in Snake Valley. In April 1869, while passing through eastern Nevada with a herd of Durham cattle on their way from Iowa to California, the Hockmans, of Pennsylvania Dutch extraction, arrived in Snake Valley, finding grass, water, good soil, and a relatively mild climate. Tired after wintering in Round Valley they decided to remain. They established a small ranch along lower Lake Creek south of present-day Garrison and later moved to Weaver Creek. Their third child, Brick, was born in November, thus becoming the first Euroamerican baby born in the valley. Mrs. Hockman wrote friends in Iowa that she lived in the valley for eighteen months before she saw another white woman.[44]

Absalom S. Lehman

The best known of the early settlers in Snake Valley was Absalom S. Lehman who would later gain renown as the discoverer and early developer of Lehman Caves. Absalom, the second child of Abraham and Catherine Lehman of Chambersburg, Pennsylvania, was born January 6, 1827. When he was fourteen years old his family moved west to Canal Winchester, Ohio, several miles south of Columbus. According to the Lehman family

---

42. U.S. Geological Survey, *Hydrology of Stock-Water Development in the Ely Grazing District, Nevada, Geological Survey Water-Supply Paper 1475-L* (Washington, U.S. Government Printing Office, 1963), pp. 403-04, 414-15.

43. U.S. Department of the Interior, Bureau of Land Management, *Nevada's Economic Profile*, by Ronald D. Fellows, James R. Garrett, and Geraldine Link, June 1974, pp. 8, 18.

44. "History of Ranching in Millard County (Snake Valley Country), As Told By Mrs. E.W. Clay, Burbank, Utah," in Day and Ekins, comps., *Milestones of Millard*, p. 180.

genealogy, the trip was made in a one-horse covered wagon on which the younger children rode. Absalom, his parents, and older sister are said to have walked much of the way.

In 1849 Absalom headed west to participate in the California Gold Rush. After an unsuccessful venture there, he took a ship to Australia in 1850 or 1851 where he developed a gold mine and established several wool stores.

While in Australia he married Mary Gardner, an English woman, and the couple had two daughters, Lucy and Martha, while living in Victoria. After the death of Mary and Martha in 1861, Absalom returned to Idaho to the home of his brother Jacob. He engaged in mining with his brother for some years before leaving his daughter Lucy with his brother and moving first to California and then Snake Valley.

Some doubt exists concerning the exact year of his arrival in the valley, family accounts inferring that this may have been as early as 1866 or 1867. A military map prepared by the George M. Wheeler expedition in 1869 shows a Lehman Ranch on Weaver Creek, some ten miles north of present-day Lehman Caves.[45]

Little is known of Lehman's ranch on Weaver Creek, which he soon sold to David Weaver. Later in 1869 he returned to Ohio where he married 21-year-old Olive Smith. By the fall of 1870 he was back in Nevada living on Lehman Creek about 1-1/2 miles below present-day Lehman Caves. In 1873 Lehman's brother, Ben, arrived with his wife Mary and settled on lower Firbush Creek at the site of present-day Baker. Sam D. Smith, Olive's brother, also moved to the valley about this time.

Absalom and Olive had three children. Laura Nevada was born in Hamilton in 1871, Franklin Smith was born at Pioche in 1874, and Lawrence was born "near Osceola" in 1878. Laura and Frank grew up on the Lehman Creek ranch, having Indian children as playmates, but Lawrence died in 1880 at the age of two years.

By 1875 Lehman and his brother had developed a copartnership to operate a dairy in addition to a fruit orchard and large garden. They had 25 to 30 cows and churned butter using a water wheel Absalom had constructed. The Lehmans sold products from their ranch to mining camps throughout the area, and on one trip marketed 350 pounds of butter. The large garden and orchard were supplemented with wild fruits, especially strawberries. The copartnership was dissolved in June 1877, and by 1880 Absalom had hired two hands to help him operate the growing ranch.[46]

The first formal land survey in Snake Valley was conducted by W.N. McGill on November 28-29, 1878, for the U.S. Coast and Geodetic Survey. The survey map produced by McGill shows that the Lehman Ranch was located along Lehman Creek about four miles west of present-day Baker and indicates that Lehman had used the waters of Lehman Creek continuously since 1869.[47]

---

45. Map Showing Detailed Topography of the Country Traversed by the Reconnaissance Expedition Through Southern & Southeastern Nevada in Charge of Lieut. Geo. M. Wheeler, U.S. Engineers, Assisted by Lieut. O.W. Lockwood, Corps of Engineers USA, 1869. P.W. Hamel, Chief Topographer and Draughtsman. (Map on file in Special Collections Division, Marriott Library, University of Utah, Salt Lake City).

46. Keith A. Trexler, "Absalom S. Lehman," 1965, pp. 1-3, Vertical Files, Great Basin National Park; Laura Lehman Mellenbruch, *The Genealogy of the Lehman Family* (Willcox, Arizona, Ruth Mellenbruch, 1943), pp. 9-13; and *Ward Reflex*, June 10, 1877.

47. U.S. Coast and Geodetic Survey Map, 1878, Vertical Files, Great Basin National Park. The original survey map made by McGill is on file in the Land Office Plat Book at the U.S. Bureau of Land Management in Reno, Nevada.

Lehman had other interests besides his ranching operation. He staked a mining claim in Osceola soon after gold was discovered in 1872, and during the early 1880s he served on the Republican County Central Committee and White Pine County Grand Jury.

The rugged frontier existence in eastern Nevada took its toll on Olive Lehman, and in 1881 she and the children traveled to Ohio. When his wife became very ill, Absalom returned to Ohio to be with her until she died of tuberculosis in September 1883. Leaving the children, whom he would not see again, with relatives, he returned to Snake Valley.[48]

Although documentation is inconclusive as to the exact date and circumstances of Lehman's discovery of the cave that would bear his name, it is generally agreed that he made his discovery during the spring of 1885.[49] On April 25, for instance, the *White Pine News* reported:

> The Reflex says: A.S. Lehman, of Snake Valley, reports that he and others have struck a cave of wondrous beauty on his ranch near Jeff Davis Peak. Stalactites of extraordinary size hang from its roof and stalagmites equally large rear their heads from its floor. A stalactite, weighing about 500 pounds, has been taken from the cave and planted beside the monument erected by Ivers to mark the spot where he observed the last transit of Venus on Lehman's ranch. The cave was explored for abut 200 feet when the points of the stalactites and stalagmites were so close together as to offer a bar to their further progress. They will again explore the cave armed with sledge hammers and break their way into what appears to be another chamber.[50]

During the spring and summer of 1885 Lehman began to advertise his discovery and serve as a guide for persons wishing to tour the cave. By early September some 800 persons had visited the cavern. On September 4 the editor of the *Genoa Weekly Courier* published an article describing one of Lehman's guided tours through the cave which the author concluded was "equal to the Mammoth Cave in Kentucky:"

> Last Sunday a party of ladies and gentlemen, myself included, went to explore the cave. It is situated at the foot of Jeff Davis Peak, about two miles from Mr. Abe Leman's ranch. Mr. Leman acted as our guide. Each of our party was provided with a candle and we started on our tour of inspection, or exploration. The mouth of this grand natural curiosity is about 35 feet in circumference. To enter it we descended by means of a ladder a distance of 15 feet, and found ourselves in a large cavern. We then wrote our names on a large board, and lighting our candles, crept through a hole in the solid rock, which was just large enough to admit one person at a time. After descending another ladder, we entered a lofty chamber, about 50 feet in height and 40 feet in width. It was hung with stalactites of great beauty and of every shape imaginable, and weighing from an ounce to several thousand pounds. Stalagmites arose from the floor like huge statues. Columns of stalactites of a dark grey color and extending from floor to ceiling, as if placed there by the hand of an architect, to support the ceiling. After admiring this magnificent gallery, we proceeded

---

48. Mellenbruch, *Genealogy of the Lehman Family*, pp. 9-13, and Trexler, "Absalom S. Lehman," p. 4.

49. For further data on the discovery and early development of Lehman Caves see U.S. Department of the Interior, National Park Service, *Lehman Caves . . . . Its Human Story*, by Keith A. Trexler, Updated Through 1975 By NPS Staff, 1977, pp. 11-22.

50. *White Pine Daily News*, April 25, 1885.

through a very narrow hall-way, or natural corridor, several hundred feet in length, and winding around through the mountain in circuitous route. Other caverns branching off from the main one several hundred feet were followed up by some of the most venturesome of the party. A small lake was discovered in one of these side caves and the water was very pure and clear; to reach it we had to creep on our hands and knees. As we advanced the cave grew damper and some of the stalactites were dripping. At one spot in the cave there was a draught of air so strong as to almost extinguish our candles. There is another remarkable feature in this cave, called the "Music Gallery." A long gallery hung at the top with small stalactites of a white chalky color. From the ceiling of the cave on each side are stalactites of a flat shape reaching down to the floor. By drawing a piece of broken stalactite across them all a sound was produced greatly resembling the music of a piano, each stalactite having a different sound. After leaving the "Music Gallery" we ascended by climbing over rocks and by means of ropes, into another series of galleries and chambers. The farther we advanced now the whiter and more crystal-like were the stalagmites and stalactites. After going as far as we could conveniently, we got some beautiful specimens and retraced our steps; but we never could have found our way out had we not had an experienced guide with us, for there were so many different galleries. I heard Mr. Leman say that the distance we had penetrated the cave was 1,500 feet, measured by himself. Since we were there a place has been blasted out with giant powder, in order to give better access to what is termed the most beautiful part of the cave. Mr. Leman is making new discoveries all the time, and there is no telling how large or extensive this cave is. Some think that it extends miles into the mountain. I have heard people who have visited the Mammoth Cave in Kentucky, say that this one is as large and excels in beauty that noted cave. I think in time, new discoveries will make it one of the great attractions of Eastern Nevada. After leaving the cave, we spread our lunch out under a tree and had a delightful picnic.[51]

The following month (October 3) the *White Pine Daily News* printed an article comparing Lehman Caves with Luray Caverns in Virginia. The article noted:

> During the past few weeks many citizens of Taylor have visited and explored the wonderful cave recently discovered on Lehman's ranch in Snake Valley in this county, and all unite in praise of its wondrous beauty and enchanting scenery.
>
> From the accounts we have been given of it, there is but one cave in the United States that can near approach it in grandeur and magnificence, and that is the caverns of Luray, in the Appalachian mountains in Page county, Virginia, and so graphically described and illustrated by Ralph S. Tarr in the September number of Leslie's Popular Monthly, and even Mr. Tarr, with all his great descriptive powers and the geological knowledge he evinces, could not possibly do justice to the Lehman Cave. And yet these two caves are almost a facsimile in their origin, their vast dimensions and in the great variety of the enhancing scenery which on every turn meets the vision of the explorer. Mr. Tarr's fine description of the ornamentation of the Luray by carbonaceous stalactites, stalagmites, calcareous tufa, travertine, cave pearls and calcite crystals would not do half justice to the Lehman Cave.[52]

---

51. *Genoa Weekly Courier*, September 4, 1885.

52. *White Pine Daily News*, October 3, 1885.

Lehman and several men worked in the cave during the winter of 1885-86, opening up narrow passages and building stairways to replace ladders to enable tourists to more easily tour the natural wonder. In April 1886 it was reported that "ladies can walk right through [the cave] without fatigue." Lehman was also "prepared to entertain man and beast," and thus the *White Pine Daily News* predicted that "a great many people will visit the great natural wonder during the coming summer."[53]

Lehman continued his farming operations while developing the cave. The primary markets for his agricultural produce continued to be the various mining communities in eastern Nevada. In July 1886, for instance, the *White Pine Daily News*, whose offices were then in the mining town of Taylor, reported:

> A.S. Lehman, of Snake Valley, the owner of the famous cave, sent us in the fore part of this week, the first new potatoes that came to town. They were of good size and flavor. Such a compliment is duly appreciated by ye local.[54]

Sometime after discovering the cave Lehman determined to sell his 600-acre ranch on Lehman Creek and move 1-1/2 miles to a small 7-acre site just below the mouth of the cavern.[55] The move would permit him to devote more of his time to developing the cave and guiding and entertaining tourists. As early as mid-October 1887 Lehman began listing advertisements in local newspapers that his ranch was for sale. The advertisements, which would appear in newspapers periodically for almost four years, described the extensive development of his lower ranch on Lehman Creek as containing

> Six Hundred Acres
>
> Of choice meadow and arable land, and is well-watered by a never-failing spring sufficient to irrigate 500 acres. The ranch is well-fenced by six miles of fencing, and is conveniently subdivided into hay meadows, pasturage, orchards, and cultivated fields. There is a fine young orchard of 800 trees.
>
> Of different fruits on the place, one hundred of which are now bearing, and the rest will soon be. The ranch is well supplied with outbuildings, comprising stables, blacksmith shop, carpenter shop, butcher shop, and is also well-equipped with an abundant supply of the best corrals. It is one of the finest dairy ranches in this section of the country, and has a good Rock Milk House, with all the necessary equipments, including a churn run by water power.[56]

While attempting to sell his home ranch on Lehman Creek, Absalom apparently began developing his upper "Cave Ranche." Documentation is inconclusive, but it seems likely

---

53. *White Pine Daily News*, April 17, 1886.

54. *White Pine Daily News*, July 3, 1886.

55. The 7-acre "homestead" was never filed upon by Lehman and did not include the entrance to the cave. Thus, the cavern's entrance has always been in public ownership.

56. *White Pine Daily News*, January 7, 1888.

that Lehman began planting a fruit orchard and grazing cattle below the mouth of the cave at some point during the mid-1880s.[57]

Lehman's orchard and grazing operations at his "Cave Ranche" required irrigation water. Thus, sometime around 1887 he constructed what has come to be known as the Lehman Ditch or Aqueduct, using earth and rock dams and wooden gates to collect and divert water from Cave Spring, Lehman Creek, and South Spring to his "Cave Ranche."[58]

Although portions of the original ditch have disappeared as a result of recent park development projects and natural erosion has enlarged its dimensions, much of the two-mile aqueduct still survives. The original dimensions of the ditch were probably 1-1/4 feet wide and 1 foot deep, although in some places it may have been as wide as 1-1/2 feet. The slope of the ditch was approximately 400 feet, enough to permit water to run easily toward the cave area.[59]

Lehman finally sold his ranch on Lehman Creek to Charles W. Rowland for $3,000 on September 1, 1891. Rowland and his family had recently moved to Garrison from St. George, Utah. Absalom soon became ill with the grippe, however, and on October 11 he died of complications resulting from pneumonia at St. Mark's Hospital in Salt Lake City. Following his death at the age of 64 he was buried at Mt. Olivet Cemetery in that city.[60]

Apparently, Lehman's "Cave Ranche" was largely undeveloped at the time of his death. The tax assessment books for White Pine County in 1891 and 1892 listed the following details of his 7-acre ranch at the cave:

---

57. *Ely Daily Times*, September 5, 1958. The size of the original Lehman orchard at the "Cave Ranche" has not been determined. In January 1934 the National Park Service described the orchard as consisting of more than forty apricot, apple, peach, and pear trees with peach trees ranging in size of 16-24 inches in diameter and apple trees up to 20 inches in diameter. Later that year Civil Works Administration personnel cut down and dug up many of the trees in the orchard because they were dead or dying as the result of drought and insect infestation. A photograph taken in 1937 shows a small picnic area/campground in the orchard area, and a photograph taken in August 1940 shows a minimum of 18 trees and refers to the area as the "Apple Orchard." The picnic area remained in the orchard until at least the early 1950s, when most of the picnic tables were relocated adjacent to the Lehman Pond. In 1975 the Lehman Orchard, consisting of seven apricot trees, two pear trees, and one peach tree, was placed on the National Register of Historic Places. Memorandum, Regional Director, Western Region to Acting Assistant Director, Park Historic Preservation, March 12, 1975, H34, National Survey and National Landmarks, and *Lehman Caves National Monument, Orchard Management Plan*, July 1986, pp. 5-7, H30, Lehman Orchard Restoration, Central Files, Great Basin National Park.

58. For further data on the history of water rights for the two Lehman ranches see Appendix M. More detailed information on this topic may be found in "A Review of the Records of the Water Rights Section Relating to Water Supply Problems at Lehman Caves National Monument," by A. van V. Dunn, Hydraulic Engineer, September 19, 1940, File No. 660-05.7, Central Files, 1933-49, National Monuments, Record Group 79, Records of the National Park Service, National Archives and Records Administration, Washington, D.C.

59. Jeff Babcock, "The Lehman Ditch, Lehman Caves National Monument, August 1978," pp. 1-3, Vertical Files, Great Basin National Park. The settling pond below South Spring and the large pond or reservoir may have been constructed around 1900. The Lehman Ditch from the settling pond to the Cave Spring area was used until the early 1940s, and at some point a pipeline was used from the settling pond to the large pond, but it is not known when it replaced the lower portion of the ditch. Uses of the impounded water in the large pond included cattle watering, irrigation for alfalfa and the orchard, fishing (stocked), cutting of ice in winter, and swimming in summer. The Lehman Aqueduct was placed on the National Register of Historic Places in 1975.

60. *White Pine Daily News*, October 17, 24, 1891; Merwin G. Fairbanks, ed., *Selected Personality Profiles, Volume No. 2* (Provo, Brigham Young University, 1976), pp. 47-49; and Trexler, "Absalom S. Lehman," p. 6. See Appendix N for the entry for Lehman in the 1891 White Pine County Tax Assessment book.

1891
7 acres at Lehmans Cave with improvements

Value of Real Estate – $7
Value of Improvements – $200

1892
Estate of A.S. Lehman
7 acres of land known as the Lehman Cave Ranch with improvements

2 work horses	$100
25 stock horses	$250
3 stock cattle	$ 35
Value of Real Estate	$ 40
Value of Improvements	$200
Value of Personal Property	$385
Total Value	$625 [61]

On November 15, 1892, the District Court of the State of Nevada, White Pine County, authorized the sale of the cave property by W.N. McGill, administrator for Absalom's estate. Pursuant to the court order McGill announced that a public auction would be held on April 1, 1893, at which the personal property and other interests of Lehman were to be sold. The advertisement for the public auction read:

> At one o'clock p.m., at the Lehman Ranch, near Lehman's Cave, in said county, the following personal property to wit:
>
> The Farming Implements, Household Furniture, Kitchen Utensils, Six Thousand Shingles, One Set Hewed House Logs, Spring Wagon, one Cart, two Cows, one calf, fourteen Brood Mares with seven Colts, four three-year old Colts, two Horses, ten two-year old Colts, and one Stallion.
>
> Also, all the right, title, interest and estate of the said A.S. Lehman at the time of his death, or that said estate has since acquired, in and to that certain lot, piece or parcel of land, situate, lying and being in the said County of White Pine, and known as the A.S. Lehman's Ranch, and the improvements thereon, which said Ranch is situated about twenty miles from Osceola, as being the land occupied by the said A.S. Lehman at the time of his death.
>
> The terms and conditions of said sale are cash or its equivalent on delivery of possession.[62]

Apparently, Lehman's alleged title to the "Cave Ranche" was questioned (Absalom never filed a homestead claim on the land) and was thus not sold at the auction. Finally, on November 20, 1895, the cave property was sold for $700 to Charles W. Rowland, the purchaser of Lehman's 600-acre ranch several years earlier. Rowland maintained the two ranches until his death in January 1905, apparently planting additional trees in the orchard near the cave and perhaps constructing or enlarging the pond or reservoir at the "Cave

---

61. Assessment Books, White Pine County, 1891-1892, Nevada State Library and Archives, Division of Archives and Records, Carson City.

62. *White Pine Daily News*, March 11, April 1, 1893.

Ranche." An article in the *White Pine Daily News* on September 4, 1897, described several events on the Rowland properties:

> The vandals who have made it a business to rob orchards, still keep up their reputation. The orchard on the Cave ranch, belonging to C.W. Rowland, was robbed of over two hundred pounds of pears, last week.
>
> Mr. C. W. Rowland has treated himself to a new cider mill. He promises the people of Ely some good cider in a few days.[63]

After Rowland's death in January 1905, his wife held the two ranches until 1911 when she sold them to P.M. (Doc) Baker. In 1905 the White Pine County Assessment Book had the following listing for the estate of Charles W. Rowland:

> Home Ranch on Lehman Creek – 600 acres and 7 acres on Cave Creek
> Furniture – $50
> Organ – $40
> Work & Saddle Horses – $150
> Harness – $40
> Milch Cows – $100
> Stock Cattle – $1,690
> Hogs – $50
> Wagons & Machinery – $ 170
> $2,290[64]

The following year both the 600- and 7-acre ranches were listed under the name of Mrs. C.W. Rowland in the county assessment book, and in 1908 the 600-acre ranch was described as consisting of 150 acres of cultivated land and 450 acres of pasture and brush. In 1910, the year before Mrs. Rowland sold her two ranches to Baker, her property was listed in the county assessment book:

> Furniture & Organ
> 1 Work Horse
> 2 Stock Horses
> Harness
> 2 Cows
> 8 Stock Cattle
> 5 Hogs
> Wagons
> Machinery[65]

Willard Burbank

During the fall of 1870 Willard Burbank, his mother, and sister settled several miles south of present-day Garrison in the meadows near Preuss Lake. Burbank patented land in the vicinity and was soon joined by his sister, Lizzie Schumacher. In addition to raising cattle

---

63. Trexler, *Lehman Caves . . . . Its Human Story*, pp. 10, 21-22, and *White Pine Daily News*, September 4, 1897, March 22, 1900, and January 19, 1905.

64. Assessment Book, 1905, White Pine County, White Pine County Courthouse, Ely, Nevada.

65. Assessment Books, 1905, 1906, 1908, 1909, 1910, White Pine County, White Pine County Courthouse, Ely.

Burbank was a civil engineer and conducted surveys of the lake for the construction of a dam. In 1875 an earthen fill dam was built for the purpose of storing water from Lake Creek and utilizing it to irrigate farms in Snake Valley. By 1891 Burbank owned 800 acres of land known locally as the Clover Ranch.[66]

The dam, which created the largest water storage and diversion project in the area, was not without its problems. In March 1883, for instance, the dam broke, and many Snake Valley ranchers suffered crop losses. The *Ward Weekly Reflex* reported on March 28 of that year:

> The dam on Lehman's Creek [Lake Creek] broke loose a few days ago and flooded the country. Mr. Lehman thinks the crops in Snake Valley will be next to nothing this year. The quantity of water turned loose may be imagined when it is stated that the dam was half a mile long.[67]

The dam was later rebuilt using more substantial building materials. During reconstruction of the dam bricks from a kiln recently established in middle Snake Creek Canyon by Rufus Pack and Nicholas Paul may have been used.[68]

George W. Baker

In 1876 the George W. Baker family moved to Snake Valley and soon established the foundations of what would become one of the largest ranches in the area. The family included his wife Maria Louisa Mathews, five sons (Howard, Harry, Martin, Thomas, and P.M. "Doc"), and one daughter Mary. George and Maria were both born in Virginia but grew up in Missouri. Prior to the Civil War the Bakers were a wealthy family, but postwar reprisals for their Confederate sympathies and heavy debts forced them into bankruptcy in 1873. That year the Bakers moved to Salt Lake City where George engaged in a three-year ore hauling and freighting contract. In 1876 the family moved to Fountain Green, Utah, where George heard tales of the White Pine County mining discoveries. Intending to contract for freighting services and selling produce, Baker soon leased the Smith and Curtis farm at Firbush (present-day Baker) Creek in Snake Valley with a five-year option to purchase and began hauling hay, grain, and produce to the mine owners at Pioche. In 1879 Baker purchased the Smith and Curtis farm, and by 1891 he owned some 800 acres in Snake Valley on which he raised some 275 beef cattle, 12 milk cows, and 29 horses. When George died in 1904 his ranch, which had become one of the largest cattle operations in Snake Valley, was known for its "productivity" and the "excellence of its fruits and vegetables."[69]

The handwritten reminiscences of George W. Baker provide interesting and poignant glimpses into the development and operation of the Baker Ranch during the late 1890s and early 1900s. Several excerpts from these reminiscences provide insights into the self-

---

66. Denys M. Baker, "Early History of Snake Valley," n.d., n.p., Vertical Files, Great Basin National Park; Read, *White Pine Lang Syne*, pp. 138-39; and Assessment Book, White Pine County, 1891, Nevada State Archives, Carson City.

67. *Ward Weekly Reflex*, March 28, 1883.

68. Read, *White Pine Lang Syne*, p. 144, and Waite, "Proposed Great Basin National Park," Part II, pp. 616-17. Remains of the kiln may be seen about 1-1/4 miles west of the Spring Creek Fish Hatchery.

69. *White Pine Daily News*, May 26, 1904, and Assessment Book, White Pine County, 1891, Nevada State Archives, Carson City.

sufficiency of the ranch, the types of crops grown, the handling of cattle, and the planting and harvesting of alfalfa.

The ranch was an extensive self-sustaining operation. According to Baker, it was self-supporting,

> and vegetables, meats, fruits were raised and taken care of through the summer and fall months. All kinds of fruits were put up fresh, which ran into hundreds of quarts and half gallons. Preserves were put into 5 gal. crock jars with tight lids.
>
> The vegetables were all stored in the root or potato cellar which was 20 x 30 feet.
>
> Hogs were butchered in the fall, cut up into shoulders, hams, and side meat. The lard was rendered, put into 5 gal. crock jars, sealed with wax, and tight covers. The pork was put into 50 gal. wooden barrels with a salt brine. After about 30 days or when cured it was taken out, hung up, afterward, smoked with corn cobs, or bark.
>
> About the only time there wasn't a beef hanging in the meat house was during the hot weather, even then a small critter was often killed if they grew tired of bacon, ham, or shoulders. Head cheese and sausage were also made and packed in crock containers. These were used during the winter months to prevent spoiling.
>
> Baker's commissary consisted of flour by the tons, salt in 500 #, arbuckles coffee in 100 # sacks, which had to be ground by hand. Tea in 50 # boxes, raisins in 50 #, many other things as black pepper which had to be ground in the coffee mill.
>
> All vegetables were made ready for the cook by squaws. They made ready the indian table, swept the floors and did the washing on a wash board.
>
> Single men worked [on the ranch] for $35.00 dollars and board [per month]. He furnished his own bed. Married men with families for $50.00. They ate two meals at home. A garden spot and fruit, two or more milk cows were furnished. Fresh meat most of the time. Some of the married men were with the Baker's for 10 years afterwards became renters.
>
> Some of the single men or men who had families in Utah would go home as soon as the fall work was finished. One or two single men were on pay the year round.

Cattle raising was a major component of the Baker Ranch operation. According to the aforementioned reminiscences, the work of Baker's continued to "grow in land holdings and value." There were "about 600 cattle & 100 horses with range and feed for all." The cattle

> were ranged in the mountains West of Baker from April 1 - to Sept. 30th. At this time they were gathered. The calves weaned were taken from their mothers. After 3 or 4 days the cows were driven North and East to the winter range, a distance of 35 miles to what was known as Skunk Springs, Utah, where water had been developed from springs which run through pipes to wooden troughs for the cattle. After the snow came these cattle lived on snow

for water with grass in the canyons. There they ranged until it was springtime in the spring, usually about March 15 to 30th. Most of the calves were born on the winter range.

They were harder to move in the spring, as most of the cows had calves. . . In fact some of the calves were born on the trail. A great many of the young calves were hauled in the extra wagon taken for this surplus. The calves were tied with rope. All four legs [were tied] and placed in the wagon which had loose hay on the floor of the wagon bed.

When the noon as well as the night stops were made the calves were taken from the wagon, and care was taken to see each calf found the right mother.

The trail from the winter range took about five or six days, where in the fall the dry stock would make the trip in two days with only two riders. In the spring there were usually five riders besides the cook or wagon tender.

The calves had to be branded.

Each calf had to be roped from a horse and dragged to the fire, where a second rope was put on either its head or feet before branding and marking. There were usually four ropers in the corral at a time and three men at the fire.

The winter quarters consisted of a one room cabin, a bed, stove, and cooking utensils, a horse barn for four horses, corral and hay and grain. There was one man with the stock the year round, and part time two men.

These men were usually equipped with two pack horses besides their riding horses. The beds which were carried was covered with heavy canvass known as a tarpaulin which had snaps and rings. When this canvass was properly around the bed it was almost water and wind proof. It was very seldom a tent was carried.

Baker went on to reminisce about a cattle drive conducted in 1897. He observed:

During the drouth of 1896-97 there were many of the breeding cows, were in such poor flesh they didn't raise calves in 1897. Hay being scarce. No grass on the range. The stockmen sold a great many dry cows and all the steers.

Good dry cows sold for $20.00 per head, yearling steers for $12.00 to $13.00 and others in line with these prices.

There were two buyers came in from Salt Lake by the name of Eager & Parsons. They traveled in a two wheel cart, two horses. With a built in frame on the back, where their bed roll and grain could be carried.

These buyers contracted cattle from most every farmer or stockman in Snake Valley and Spring Valley for fall delivery. These cattle had to be up to certain grade, no cripples or sick ones. An advance payment was made on the cattle, the balance to be made upon delivery at a certain place in Snake Valley known as the Conger Ranch. Each stockman gathered his cattle then separated what were to be sold.

After the inspection these were delivered to where the main herd was made up for the trail to Oasis, Utah, a distance of about 120 miles as the trail went.

These cattle had to be branded or dobbed with paint so they could be distinguished from the other range cattle.

Each stockman furnished one or two cowboys and horses, according to the number sold. They had one chuck wagon, one cook, sometimes a flunkey who did whatever chores there were. While in camp the coffee pot was always on the fire, and things were kept for hurried meal.

A foreman was chosen who had full charge of the drive. It happened Philip M. Doc was chosen. Several of the cattle hands were Indians who were very reliable for night herding, as well as day trailing. A night herder was not allowed to smoke or even light a match. The number of night herders depended on the weather and several other things, such as water conditions, feed and the moon light. Cattle often wanted to feed if the moon was bright.

Some times the night herders could go far enough away from the herd to enjoy a smoke. Other times when the cattle were restless caused from lack of water or feed, the riders either rode on a trot or lope around the herd pushing back what was on the move.

Some of the cowboys would sing or whistle most of the time on shifts.

The night men were changed at midnight. Usually the herd was on the move at daybreak which was about 4 o'clock. Enough riders came on shift after having a cup of coffee and a beef steak to trail the cattle until the other riders could get breakfast and catch up to the herd.

The foreman was always with the cattle when it started moving and usually stayed until the other men overtook the herd.

The foreman usually changed horses often and had the cream, as he did most of the outside riding such as looking ahead for feed and water. The herd would usually travel farther from 4 in the morning until 11, than all the balance of the day from this time until mid-afternoon they would feed and rest.

Water was quite a problem on the drive. The springs were from 12 to 18 miles apart. Some of these watering places were very soft and dangerous. The herd would have to be held and small bunches of a 100 or so were let go in to avoid tramping them in the mud. When these were watered they were moved on so others could come in. Where water and feed was plentiful they would rest the herd, men and horses.

There were two horse wranglers one for night and one for day. Usually the changes were made morning, noon, and night. The night horses were saddled and tied so they would be handy in case of a storm or stampede.

The night horses were usually rode until noon if not used at night.

One thing that stands out as it was told to me on this drive. What is still known as rattle snake knoll. The herd had to pass to the sides of this knoll which is possibly two miles around. At the time of the drive there were better than 100 rattle snakes killed. This knoll is located about 7 miles east of Knoll Springs on the Old Oasis freight road.

What is known as Cowboy pass on this road is a landmark. Here is where the cowboys met the sheep men when they were moving into Snake Valley from Tooly Valley. No lives were lost but the sheep were turned back. This pass was known as the dividing line between sheep and cattle for many years.

In his reminiscences Baker elaborated on the planting and harvesting of alfalfa on the ranch. He noted:

This was a crop that had to be watched from many angles. First the proper time to irrigate. Some of the alfalfa ground was pastured with horses until early June. After the stock were removed it was irrigated and nothing more was done until it was determined as to the seed quality and quantity. Other tracts of land was watered and clipped with the mowing machine. Other tracts had never been watered for 10 years and never missed a crop of seed.

After the irrigating it was some time before the decision was made by Philip M. Doc. If hay it was cut and stacked for winter feeding.

Seed cutting usually started in August and continued until early Sept. 10 to 15 when the first frost was expected. A frost was very detrimental to the seed, causing it to turn black and was not considered first class. Of course a lower price was realized.

The dark seed will grow, but was not used to any extent. When the seed was cleaned at the seed mill the dark and light-weight seed went in with wild seed and chaff. This was used to feed sheep and other livestock.

The seed harvesting was very slow in those days. They would bolt a half cowhide to the sickle bar so the alfalfa would be carried until the pile was large enough to rake off by hand. One man followed with a wood tooth rake and raked it off in a pile. Then two men on opposite corners of the land to be cut would set back pile to the left so the team and machine would not crush the seed from the burrs. This was dried some ten days. Then came the hauling and stacking.

The hay racks were built with matched flooring 8 x 16 feet. A canvas was used two feet wider and longer than the rack. This canvass was emptied on the stack at noon and night.

The place for stacking was selected where there were no rocks to get into the thresher cylinder at clean up time.

The first side rake was built on a half circle platform made of matched flooring with tin on the outside and close around the machine gears. The platform was carried by a wheel on the far side which could be raised or lowered according to the height of your hay or grain to be cut. The platform was lofted to the sickle bar. There were four wooden arms which revolved around the head of the machine, driven by the gear head. Each one of these arms had a wooden toothed rake which pushed the hay back on the platform. Every fourth or fifth rake as the machine was set pushed the hay or seed around the half circle behind the machine. In this way it didn't have to be moved with the forks.

One man and team would cut as much as four men, where they used the cowhide system.

> The threshing of this seed was a long and tiresome work. It was all handled by fork and hand fed into the threshing machine.
>
> Twelve horses were used on the circular machine called a horse power, which gave the thresher power to do the work.
>
> In all it took about 12 to 14 men to operate the threshing. This work took from three weeks to a month depending on weather conditions.[70]

After the death of George W. Baker in 1904, his son P.M. "Doc" Baker took over the Baker Ranch and commenced a series of property transactions that would result in making the ranch the largest in Snake Valley. When the Nevada Amalgamated Mines and Power Company was formed in 1906 to renew and reestablish placer mining operations at Osceola, Baker sold his holdings and water rights to the firm. On January 5, 1907, the *Ely Mining Expositor* quoted the company:

> The water rights to the Baker ranches which we bought a month ago will be put to good advantage. Part of the water will be used in working the thousand acres of placer ground now under our control, and the remainder will be used in generating power. We expect to have enough power next Summer to supply the town of Ely.[71]

Within months the Nevada Amalgamated Mines and Power Company became overextended, and P.M. "Doc" Baker regained possession of his ranch. At the same time, he began acquiring other Snake Valley ranches, thus making him the largest landowner in Snake Valley. On November 14, 1907, the *Ely Weekly Mining Expositor* reported on these transactions:

> Through an agreement with the Amalgamated Nevada Mines and Power company, of Blackhorse and Osceola, P.M. Baker, who sold his ranch in Snake valley to that concern, has regained possession of that property.
>
> H.S. Woolley, the former president of the Amalgamated, who acquired options on the Snake valley ranches and the Snyders, have paid Baker in the neighborhood of $30,000 for his water rights. Not desiring to turn over any more money for that purpose, they entered into an agreement with Baker, by which he takes back all his ranch property, and absolves the Amalgamated company from any further obligation.
>
> Under the provisions of the agreement, the Amalgamated people still have the privilege of using the water for power purposes, but they must transmit a sufficient amount of water from the site of the proposed power plant on Baker Creek, to irrigate all the ranches controlled by P.M. Baker.
>
> Mr. Baker has closed a number of deals recently by which he becomes the possessor of thousands of acres of the best agricultural land in Snake valley, including five of the most valuable ranches in that vicinity.

---

70. "Care of Friends and Strangers at the Baker Home," "Handling of Cattle by the Bakers," "Cattle Drive 1897," and "Growing and Harvesting Alfalfa," George W. Baker Reminiscences (Unpublished Ms., ca. 1904). Copies of the quoted excerpts from the Baker reminiscences were provided to the author by Denys M. Baker of Baker, Nevada, during a personal interview on September 15, 1988.

71. *Ely Mining Expositor*, January 5, 1907.

> For a consideration of $12,000 he has purchased the ranch of his brother, Harry Baker, which adjoins the old Baker estate, and Harry Baker and wife left a few days ago for Missouri, where they intend to purchase a farm a few miles from Kansas City. The ranch of the late Howard Baker, who killed himself over a year ago, after he had attempted to kill his wife, will fall into the hands of P.M. Baker as soon as the estate has been settled in the courts.
>
> E.W. Clay and L. Burbank, who sold their water rights to the Amalgamated company less than a year ago, have also transferred their land to P.M. Baker.[72]

As a result of these property acquisitions P.M. "Doc" Baker had property holdings totaling nearly 1,200 acres by 1909. The county assessment roll for 1909 listed the following properties as belonging to Baker:

Home Ranch on Baker Creek – $500
Dolly Baker Land with house and improvements – 13 acres
Clay Baker Land and improvements – 320 acres
Harry Baker Land and improvements – 80 acres
Howard Baker Land and improvements – 80 acres
Three lots in Black Horse
Young Canyon House and improvements

Baker also possessed numerous livestock, farm implements, wagons, and carriages:

12 work horses
6 saddle horses
30 stock horses
1 stallion
1/2 interest in one stallion
mules
harness
15 cows
500 stock cattle
12 hogs
wagons, carriages, and machinery[73]

"Doc" Baker continued to acquire property and consolidate his holdings in Snake Valley. In 1911, for instance, he purchased the 600- and 7-acre Rowland ranches, both formerly belonging to Absalom Lehman. With these acquisitions Baker's property holdings in the valley amounted to 2,920.[74]

During the 1910s and 1920s the old Baker Ranch went through several transitions. In 1914 Baker sold his extensive holdings to Guy Saval, a wealthy Basque sheep rancher from Elko, for $100,000. News of this transaction was reported in the *Humboldt Star* on September 7, 1914:

> Guy Saval of Elko is here [Ely] for the purpose of purchasing the Baker ranch in Snake valley. The Baker ranch, situated east of Jeff Davis peak in the

---

72. *Ely Weekly Mining Expositor*, November 14, 1907.

73. Assessment Book, 1909, White Pine County, White Pine County Courthouse, Ely.

74. Assessment Book, 1911, White Pine County, White Pine County Courthouse, Ely.

richest portion of Snake valley, is undoubtedly one of the finest ranches in White Pine county.

Mr. Saval is one of the largest cattle and sheep owners in Elko county and it is understood that he will go into the stock raising business in White Pine county on an extensive scale.

Mr. Saval made an initial payment of $50,000.[75]

Saval formed the Baker Livestock Company and immediately began converting the former Baker cattle operation to a sheep raising concern. During the next several years a number of Basques invested money in the Saval company and moved to the town of Baker, which soon became derisively referred to as "Basque Town." Saval continued sheep operations until he sold the ranch to the Utah-Nevada Land and Livestock Company in 1921.[76]

The president of the aforementioned company was Otto Meek, a long-time western cattleman and stockraiser, who had furnished more than 275,000 head of horses and mules to the Allied Powers during World War I. With financing provided by the Mammoth Land and Power Company, Meek established the Meek Brothers Ranch and converted its operation from raising sheep to cattle, horses, hogs, poultry, and row crops. In 1923 the White Pine County assessment roll listed the assets of the ranch under the following classifications:

Cultivation	1,017 acres
Meadow	190 acres
Pasture	400 acres
Arable	60 acres
Grazing	1,567 acres
Barren	1,076 acres
Work horses	30
Saddle horses	6
Stock horses	15
Mules	6
Stock cattle	60
Bulls	2
Milch cow	1
Hogs	60
Chickens	100
Turkeys	15 [77]

Otto Meek also began construction of a dude ranch on part of the property. Explaining the rationale for the dude ranch, he noted:

It occurred to me, that by combining the resources of our immense Ranch, we could give guests every variety of sport; the big outdoor life they are seeking,

---

75. *Humboldt Star*, September 7, 1914, quoted in William A. Douglass and Jon Bilbao, *Amerikanuak: Basques in the New World* (Reno, University of Nevada Press, 1975), p. 264.

76. "History of the Nevada National Forest Written by George C. Larson in 1917," pp. 26-27, in Donnel J. Ward, comp., "History of the Humboldt N.F.," [1960], Typescript, Historical Files, U.S. Forest Service, Humboldt National Forest, Headquarters, Elko, Nevada.

77. Assessment Book, 1923, Vol. 2, White Pine County, White Pine County Courthouse, Ely.

including golf, polo, tennis, horseback riding, mountain climbing, hunting and fishing; where a great diversity of wild game and fish could be found without sacrificing one iota the comforts to which the guest is accustomed.

We have the setting, organization, equipment and adequate resources back of us that will enable us to give our guests a variety and quality of service and entertainment unequalled anywhere.

The Meek brothers published a brochure advertising the unique qualities of their new dude ranch in grandiloquent terms:

For magnificence and magnitude Meek's Ranch is without rival in America. It has become the gathering place of sportsmen, statesmen, writers, painters, celebrities of the screen and stage, and business men who have found from Roosevelt's experience that the West has much to give.

Icy streams, filled with angry trout, tumbling from the mountains, are fed from placid lakes above. Wild duck and game fish abound. The early morning fisherman may startle deer from the thickets beside the streams. They will probably scamper up the canyons where there are, besides deer, coyotes, mountain lions, wild cats and wolves. Antelope still inhabit the lower lands.

Here the bracing mountain air makes exercise a joy, and whether one chooses to scale the mountains, visit the great glacier in the northern side of Mount Wheeler, explore uncharted country, ride to cow camps, break wild horses, live with cowboys as a cowboy, hunt wild game or fish for trout in the cold, swift mountain streams, play polo, race, golf, tennis, swim or lounge about the luxurious clubhouse, all these opportunities will be found at Meek's.

Within half a mile of the Ranch Clubhouse are the now famous Lehman Caves, as yet but partially explored.

As was the case with many other development ventures during the 1920s, the dude ranch operation was curtailed by the onset of the Great Depression in 1929.

While the Meek brothers were commencing operations on their ranch, James Cruze, director of the Paramount motion picture production, "The Covered Wagon," selected the ranch as background for filming in 1922. During the filming of the movie, which featured Warren Kerrigan and Lois Miller in leading roles, the company encamped on the western shore of Pruess Lake, several miles south of Garrison, where a small tent city was established and hundreds of performers were housed. Among these were 400 Indians who were brought to the area from various parts of the West. Several hundred oxen were transported to the site, as were a herd of buffalo from Antelope Island in the Great Salt Lake. During the filming many local townspeople and ranchers were hired as extras to appear in the picture. The famous scene of the crossing of the Platte River was taken on the north end of Pruess Lake. The film cost some $1,000,000 to produce and was one of the early extravaganzas of the motion picture industry.[78]

78. "Meek's Dude Ranch," ca. 1923, Vertical Files, Great Basin National Park; Waite, "Proposed Great Basin National Park," Part II, p. 479; and Read, *White Pine Lang Syne*, p. 142.

Elwin W. Clay

Elwin W. Clay, who would later gain local prominence as a local blacksmith and an early Utah territorial judge, began working on the Willard Burbank Ranch near Pruess Lake in 1876. As a young man he had been employed as a cowboy in California and Nevada and had sold horses in Snake Valley in 1873 while on a circuit through eastern Nevada. In later years he reminisced about that horse-selling endeavor:

> I went through Snake Valley in August, 1873. My step-father and I had been to California where we bought horses, paying from $2.50 to $7.00 per head. We first went to Monroe, Sevier County, for there was no money those days, just trade. We had four hundred forty-four horses, and traded them all but seventy-four head, between Monroe and Ephraim. We never took a note or anything to show for our transaction. The men wanting the horses would come in a band, pick their horses and lead them home, and we would select our grain, wheat or what ever we were trading for; sometimes it was stock. Grain was then six or seven cents a pound, and we got from $100.00 to $125.00 a head. Every man paid but one – we lost one account. We took some cattle for horses, as cattle at that time were used for working. Some of the men would turn whole fields of grain over to us.
>
> We took our seventy-four head of horses over to Snake Valley in 1873, and there we found Sam Hockman to whom we traded our seventy-four horses, and he had two children living with his wife, a boy and a girl.[79]

After working on the Burbank ranch for some years, Clay married Margie Burbank in 1884 and the couple moved into a log dwelling he had constructed near Clay Spring on the ranch. The home was known as the "House by the Side of the Road" as it was a favorite stopping place for friends and travelers along the pioneer road that eventually became the present-day route of Utah State Highway 21.[80]

Jonas Woodward

One of the families that attempted to settle in Snake Valley during the late nineteenth century was that of Jonas and Lizzie Woodward who left Salt Lake City in November 1894 to get a fresh start on life. Neal, one of the Woodward sons, kept a journal of the family's six-year stay in the valley. The journal describes the conditions encountered by the family when it entered the valley:

> We traveled some 14 miles today, made a dry camp between Tule Valley and Snake Valley. Tomorrow we expected to see the land which was to be our home. . . . This morning we started on west soon crossing the summit and started on the down grade into the valley. It was desert just like all the rest of the country we had passed thru but on the west side of this valley was a high range of snow capped mountains, the Snake Range.
>
> Mt. Moriah was on the north of this range and Jeff Davis was the main peak of the range. These mountains were some 13,000 ft. high! It was now the middle of November but there was some of last years snow on the north side

---

79. Quoted in Day and Ekins, comps., *Milestones of Millard*, p. 181.

80. E.W. Clay, "Shades of the Past," n.d., and Clyde Heath, "E.W. Clay: The Sawtooth Judge," 1968, Vertical Files, Great Basin National Park.

of some of these peaks. On the north of the Jeff Davis Peak were the placer mines of Osceola and also rich quartz mines, but was quiet now the camp had been on the decline for some time.

We reached Knoll Spring for noon and took plenty of time to rest and as the day was warm and we were back to where water was plentiful, we took time to wash off most of the desert dirt. Left the Springs in the afternoon to go on to the Conger ranch some 10 miles to the south. This was the first ranch we had seen since leaving Rush Valley some two weeks ago. We got to our camp about sundown, found a man and his family here, also two hired men. They were all working for a Mr. Gouder, one of the big cattle men of this valley.

Here Clarence & Uncle Rob went to the bunkhouse to sleep but we slept in the wagons. Was cold but pleasant. The water was frozen so hard we had to take a club to break the ice so the horses could drink. This morning we left for Snake Creek, our destination. That was some 13 miles to the south. There was a small settlement here now of some 6 or 7 small farms and this was to be the seat of operations for the new irrigation company. At noon we came in sight of the farms and trees the first we had seen since leaving Camp Floyd, except for cedar and juniper which grew wild in the hills.

The fields and hay stacks were a sight which we could enjoy. We reached the Rowland ranch to stop for dinner and afterward Clarence rode his saddle pony up to the Burbank Post Office to get our mail, some 4-1/2 miles. He found the building, a log building some 1/2 mile from the nearest ranch. Just a place to receive and distribute mail which the stage brought from the rail at Frisco. This was one of the offices on the stage line from Frisco to Ely, Nevada.

In the afternoon we drove on thru the settlement. We stopped at a farm Mr. Imes had rented and bought 2 sacks of grain. This farm belonged to a Mr. Robison but he was away so we did not see him. We pulled on up to the creek above the settlement and camped to stay here till we could find something to do or go on the land we intended to locate.

We found most of the people here very friendly though people of very moderate means. Their houses were all built of logs and roofs were made of poles covered with straw and clay. The clay shed water when it did not rain too hard. Most of them were ceiled with white cloth. They were warm, comfortable houses but not very fancy inside or out. Most of them had a big fireplace. They were a long ways from the railroad here, 60 to 80 miles, and building material was high and this kind of a house did not require much which they had to buy except lumber for the floors and doors and they could trade for that at a local sawmill. Their nails they bought from the local store but they had to "send away" for windows.

Most of the people had small farms and did all their own work and raised hay, grain and gardens for their own use. They fed their hay to their work stock and cattle and sold their grain to the travel or took it to the store to trade for store pay.[81]

---

81. "Woodward Family," Journal of Neal D. Woodward, pp. 4-6, Vertical Files, Great Basin National Park.

The Woodwards first settled along Snake Creek, but soon decided to relocate in Lexington Canyon. The Woodward boys took work wherever they could, herding sheep, milking cows, helping with harvests, and laboring at sawmills and on mining claims. As their farm began producing crops, they took its produce to Ely, Ward, and Cherry Creek to peddle in the mining camps. The Woodwards, however, never could succeed in Snake Valley and ultimately left for Oregon in 1900. As the Woodwards left Snake Valley Neal wrote:

> We had been in this land of promise – mostly promise – results were few, now for about 6 years and had gathered some stock around us but had not found the farm we were looking for and had not seen any within our reach. We had 21 head of cattle and some 30 or 35 head of horses. But farm land was scarce and water was scarcer and uncertain and though a rolling stone gathered no moss we thought that a change of pasture might make fat calves so we decided to look for greener fields. We wanted to go to Oregon as we thought the rain would fall there and the grass would grow. We were getting tired of the desert.
>
> We got up near the summit of the Snake Range and camped for dinner. We could see back over the valley that had been our home for the past 6 years. Many of our plans had fallen flat. . . . We came here to get a farm but there was such a small area of cultivated land and this was held so high that it cost as much to buy a farm here as anywhere. There was thousands of acres of good level land in this valley but it was worthless without water. Without water it would not produce anything but lizards, horned toads and disappointment.[82]

Other Early Snake Valley Settlers

There were other early settlers in Snake Valley beside the Hockmans, Lehmans, Burbanks, Bakers, Clays, and Woodwards. During the 1870s Horace Conger, a well-to-do miner from Virginia City, established a ranch four miles east of the Nevada-Utah border on the east side of northern Snake Valley. Samuel Foreman and Francis Freeman settled along Lake Creek about 1870 and later purchased a farm near Garrison where they raised barley and other grain crops. In 1871 William Cobb and his wife settled a farm at Big Spring. Robert and Nick Dowling began farming along Snake Creek near present-day Garrison in the early 1870s, and in 1873 sold their land to D.A. Gonder and William Gregory, two cattlemen who had crossed the plains from Newark, Ohio, with ox-team wagons loaded with dynamite for Fort Douglas, Utah, five years before. During the early 1870s the George Robison family and two Pioche mine owners, Smith and Curtis, commenced farming operations near present-day Baker, raising hay, grain, and vegetables for area mining camps. About 1878, William Atchinson homesteaded land near the south end of Pruess Lake. In 1886 the David Eldridge family established a ranch in the canyon west of Silver Creek. During the 1880s the Wilber Fowler family settled in Big Wash, and in 1889 Elias M. Smith established a ranch nearby and soon gained local notoriety as the Snake Valley casket maker. About the same time Peter Robison settled in what became known as Shingle Creek Canyon. In 1899 Thomas Deardon, a native of Great Britain who had established a mercantile and freighting business in Baker in the mid-1880s, acquired a livestock ranch near Garrison.[83]

---

82. *Ibid.*, pp. 16-17.

83. Baker, "Early History of Snake Valley," n.p.; Read, *White Pine Lang Syne*, pp. 133-49; *Milford News*, August 11, 1949; *Ely Daily Times*, October 11, 1961; and Boyes to Phipps, July 22, 1979, Vertical Files, Great Basin National park.

EARLY SETTLERS AND RANCHING OPERATIONS IN SPRING VALLEY

Settlers began establishing farms and ranches in Spring Valley during the late 1860s and early 1870s. The valley, which the Indians had once called the "Valley of One Thousand Springs," was considered by many to have the best watered grazing land in the state. The first settler in the valley was reported to be Benjamin Kimball who established a cattle ranch near the present-day Swallow Ranch in 1869. Among the early settlers in the northern part of the valley were Thomas and Charles Odgers, Manton Bassett, R.C. O'Neill, Jacob Cameron, James McCurdy, Patrick Flanagan, and Michael Keelan, while those in the southern part were Abner C. Cleveland, Louis Olmstead, Daniel Rutherford, and George Swallow. These settlers engaged in raising horses and cattle, cutting sufficient hay in the summer for winter feeding, and raising vegetables and fruit to supply nearby mining camps. The continuing increase in stock, coupled with several consecutive dry seasons, reduced the valley "to a state bordering on barrenness," by the late 1870s and early 1880s, and only those cattlemen who could afford to fence in their ranges were able to survive, finally only Cleveland, Olmstead, and Swallow remaining.

While the valley afforded increasingly poor grazing for cattle, the range proved sufficient for sheep and by the mid-1880s the valley became widely-known as a center for sheep raising. Among the earliest sheep raisers in the valley was James Sampson, a miner from Hamilton who brought 50 head of sheep about 1876. Within a decade he possessed a large ranch several miles south of Muncy Creek, was assessed for some 8,000 sheep, and shipped some 200,000 pounds of wool to the Boston markets in one year. Other early prominent sheepmen in the valley were John and Joshua Yelland, Patrick Keegan, John Tippet, James, Thomas, and Harry Bews, Alfred Doutre, Daniel Murphy, William McCurdy, Ralph and Manton Basset, Pierce and Quick, and the Bounty brothers.[84]

One of the largest and most prominent ranches in Spring Valley was that established by Abner C. Cleveland, a cousin of President Grover Cleveland. Born in Maine in 1838 Cleveland sailed around the Horn to California in 1858 and spent the next ten years in various mining and lumbering ventures in California and the Comstock in Nevada. For a period he represented Nevada County in the California state legislature. After losing money in a Virginia City mining venture in 1868, he joined the White Pine mining rush. After losing more money in a toll road venture between Hamilton and Eureka, he entered the cattle ranching business in Spring Valley in the early 1870s. For the next decade he and his partner, Daniel Murphy of Elko County, imported Mexican cattle to run the range, but several severe winters killed much livestock and the men suffered economic loss. In 1881 Cleveland imported the first Hereford bulls into White Pine County, and in 1884 he purchased additional Hereford, Shorthorn, and Holstein sires from James Funkhouser, the noted Missouri breeder. By the late 1880s the Cleveland Ranch encompassed some 4,000 acres, and Cleveland's cattle ranged over a 15,000 spread in the valley.[85]

Perhaps, the best contemporary description of the Cleveland Ranch is found in materials gathered by Hubert H. Bancroft about 1888. He noted:

---

84. B.F. Miller, "Nevada In the Making," *Nevada State Historical Society Papers, 1923-1924*, pp. 306-121; Read, *White Pine Lang Syne*, pp. 173-74, 182-83; Interview of George Swallow by James Jacobs, April 8, 1968, Transcription, 1980, Historical Files, USFS, Elko; Sawyer, *Nevada Nomads*, pp. 18-22; Wentworth, *America's Sheep Trails*, pp. 218-22; and Georgetta, *Golden Fleece in Nevada*, pp. 304-07.

85. Read, *White Pine Lang Syne*, pp. 180-81; Davis, *History of Nevada*, I, 443-44; Shelton Hardaway Short, "A History of the Nevada Livestock Industry Prior to 1900" (Unpublished M.A. thesis, University of Nevada, Reno, 1965), pp. 32, 71; and U.S. Department of the Interior, Bureau of Land Management, *Cultural Resource Record of the Moriah Planning Area, Ely District BLM*, by Peggy Gaudy, May 1979, p. 86.

> Mr. Cleveland's place is almost due south from Toana, on the C.P.R.R. His interests are in the firm of Cleveland & Hill, who have about 15,000 acres of land, upon which their cattle range, the range extending, however, over an area of 100 miles. The firm own a herd – each of thoroughbred Herefords, Shorthorns and Holsteins; their range cattle number between 5,000 and 7,000 head. They also raise some fine blooded horses, and have considerable capital employed in their industry. The home ranch, which is nearly in the centre of the valley, lengthways, contains slightly over 4,000 acres, which is highly improved, and planted partly in trees, making a very beautiful place. Here is kept the blooded stock, the land being sown almost entirely in tame hays. Mr. Cleveland resides on the ranch with his wife. The climate of the Valley is delightful, and Mr. Cleveland has never seen snow enough there for sleighing.
>
> Hay is raised on Messrs. Cleveland & Hill's ranch for $3 per ton, and is quite abundant. They do not feed the range cattle; last winter (1887-'88) 1,000 head were fed. All business is done with Salt Lake City, freight being shipped down the Utah Central Railroad, and thence 120 miles by team.[86]

Cleveland continued to acquire land and add to his purebred herds until the early 1900s. By 1891 he owned more than 7,000 acres of land in Spring Valley.[87] Later in 1898 he attended the Chicago Livestock Show where he purchased cows, heifers, and bulls to enlarge his purebred herds.

A second ranching operation worthy of mention in Spring Valley was that begun by Jewett W. Adams. In 1882 he drove 5,000 head of cattle from Nye County to Spring Valley where he had purchased several ranches and obtained several others as a result of land forfeitures. Two years later he bought an additional 1,700 acres from Cleveland, thus making Jewett one of the largest landholders in White Pine County. Meanwhile, William N. McGill and W.G. Lyons began cattle ranching in Steptoe Valley in 1886. McGill soon bought out Lyons and continued to expand his holdings until merging with Adams in 1898 to form the Adams-McGill ranching empire that included vast herds of cattle as well as sheep. Later in 1909 Adams and McGill purchased the Cleveland Ranch in Spring Valley, thus giving them title to more than 98,000 acres on which they raised some 12,000 cattle, 1,000 horses, and 40,000 sheep.[88]

---

86. "Abner Coburn Cleveland: Data Regarding Progress and Growth of Nevada," pp. 3-5, in "Data Regarding Progress and Growth of Nevada," ca. 1888, Manuscripts Division, Bancroft Library, University of California, Berkeley.

87. Assessment Book, White Pine County, 1891, Nevada State Archives, Carson City.

88. Short, "History of Nevada Livestock Industry Prior to 1900," pp. 32, 71, and *Cultural Resource Record of the Moriah Planning Area*, pp. 86-88.

CHAPTER EIGHT
POLITICAL, SOCIOECONOMIC, TRANSPORTATION, COMMUNICATIONS, AND LUMBER INDUSTRY DEVELOPMENT IN SNAKE AND SPRING VALLEYS

INTRODUCTION

The purpose of this chapter is to present a historical overview of political, socioeconomic, transportation, and communications development in White Pine County with particular attention to Snake and Spring valleys. The chapter will focus on the establishment and development of White Pine County, population and economic trends and characteristics of the county, settlement of communities in Snake Valley, and transportation, communications, and early industrial development in Snake and Spring valleys and the Snake Range.

ESTABLISHMENT OF WHITE PINE COUNTY

White Pine County is in the central eastern part of the state of Nevada, being bounded on the north by Elko County, the south by Lincoln, the southwest by Nye, the west by Eureka, and the east by the state of Utah. By the Compromise Act of September 9, 1850, Congress established Utah Territory, and the area of present-day Nevada fell under its jurisdiction. From that date until the state of Nevada was established in 1864 the area of present-day Nevada was treated as a backwater by Utah territorial officials in Salt Lake City. Because of the distance from the Utah territorial seat and because officials demonstrated little concern for the western Great Basin, there were repeated attempts in the area of present-day Nevada to form squatter governments or to annex the region to California. The hostility of some settlers toward their Mormon counterparts encouraged these efforts.

Initially, the Utah territorial government allocated the western portion of the Great Basin or the approximate area of present-day Nevada to existing Utah counties. The counties were extended into long east-west strips which did not reflect local geography and were not designed for practical administration. The region in which present-day Great Basin National Park is located became part of Millard County in 1851, the county stretching virtually to the California border.[1]

Gold and silver strikes in the Comstock region of present-day western Nevada led to a dramatic increase in the area's population beginning in 1859. The non-Mormon prospectors, miners, and opportunists became convinced that the only satisfactory government would be one organized by locals. At the same time, some federal officials realized that federal control was needed in the rough frontier communities where justice and ownership rights were either poor or lacking. Although the Utah territorial government stepped up its efforts to satisfy western regional concerns, various conventions in the western Great Basin began to call for the creation of a new territory. This call was finally answered on March 2, 1861, when President James Buchanan signed legislation creating the Territory of Nevada out of lands formerly belonging to Utah. After his inauguration, President Abraham Lincoln appointed James W. Nye of New York as governor of the territory on March 22, 1861, and directed him to proceed to Nevada to organize a government. The first legislature convened in the new capital of Carson City in November.

---

1. Documentation concerning Utah territorial government during the 1850s and early 1860s may be found in Secretary of Utah Territory, Territorial Executive Papers, Series 241, Reel 1, 1849-1857, Reel 2, 1857-1864, and Reel 3, 1864-1869, and Executive Record Books, Series 242, Reel 1, 1850-1863, and Reel 2, 1852-1871, State of Utah, Department of Administrative Services, Division of Archives and Records Service, Salt Lake City.

When Nevada was established as a territory in 1861 its boundaries as set down by Congress excluded present-day White Pine County, the eastern boundary of the new territory being located on the 39th meridian west from Washington. Two boundary additions were made to Nevada in 1862 and 1866 to round out its present-day geographical configuration. On July 14, 1862, Congress granted a request from Governor Nye and the territorial legislature, asking for one additional degree of territory to the east. Thus, when admitted as the 36th state to the union on October 31, 1864, Nevada had as its eastern boundary the 38th meridian west from Washington and thereby included only the western half of present-day White Pine County.[2] In 1866 U.S. Senators Nye and William M. Stewart of Nevada introduced a bill to amend the Nevada Enabling Act to include one additional degree of longitude on the east. The bill was passed by Congress on May 5, 1866, extending the boundary of Nevada eastward to the 37th meridian west from Washington and southward to the Colorado River. This extension included the eastern portion of present-day White Pine County and the area in which present-day Great Basin National Park is located. The addition of these two degrees of territory was justified by Congress on the grounds that they were mining areas and Nevada was a mining state, and thus the interests of the state and the new territories were identical. For its part, Utah objected little to the loss of its territory as its leaders viewed the mining region as being inimical to the interests of the Mormon settlements.[3]

The western half of present-day White Pine County was made a part of Churchill County in 1862. Before Churchill was fully organized, however, a large portion of it, including the present-day White Pine County area, was placed under the jurisdiction of Lander County on December 19, 1862.[4] After the eastward extension of Nevada in 1866, much of the area acquired in the central eastern part of the state, including the area in which present-day Great Basin National Park is located, was incorporated into Lander County. On April 1, 1869, with the rapid expansion of population resulting from the White Pine mining rush, White Pine County was established, the county seat being designated as Hamilton. The boundaries of the new county were fixed indefinitely as follows:

> All that portion of the State of Nevada lying east of a line running due north and south through the most westerly part of the house known as Shannon's Station, on the westerly slope of Diamond Mountains, in Lander County, on the road from Austin to Hamilton in said County and south of a line running due east and west through the most northerly part of Camp Ruby, and north of the present

---

2. While the total population of Nevada was theoretically too small for statehood status, it was argued that the addition of Nevada would help to strengthen the Union cause in the Civil War because of its extensive gold and silver production and enhance the reelection prospects of President Abraham Lincoln in November.

3. Davis, *History of Nevada*, pp. 211-12; Mack, *Nevada*, pp. 406-408; Beulah Hershiser, "The Adjustment of the Boundaries of Nevada" (Unpublished M.A. thesis, University of Nevada, Reno, 1911); *Political History of Nevada* (4th ed., Carson City, 1960), pp. 33-34; and Russell Richard Elliott, "The Early History of White Pine County, Nevada: 1865-1887" (Unpublished M.A. thesis, University of Washington, 1938), pp. 3-5.

4. Angel, *History of Nevada*, pp. 461-62.

line between the counties of Nye and Lander, as located by Thomas J. Reed, County Surveyor of Lander County, made in 1868.[5]

POPULATION TRENDS AND CHARACTERISTICS OF WHITE PINE COUNTY

The population of White Pine County declined markedly after the White Pine mining rush. Newspapers estimated a total population in the White Pine district of some 40,000 persons at the height of the rush in 1869-70. These figures were apparently exaggerated, because the government census of 1870 showed a total of only 7,189 persons for the entire county. It is true, however, that the frenzy of the rush had reached its peak by mid-1870, and miners and prospectors quickly moved on to other areas.

Of the total population in 1870, 6,830 (95.0%) were whites, 67 (0.9%) were Blacks, and 292 (4.1%) were Chinese. The native-born total was 3,772 (52.5%), and the foreign-born total was 3,417 (47.5%). Most of the native-born group came from eastern states such as New York (701), Ohio (360), Pennsylvania (295), Illinois (158), and from California (364). The largest number of foreign-born came from Ireland (971), England and Wales (572), British America (454), Germany (445), and Scotland (119).[6]

The population of White Pine County declined markedly after 1870, a special state census in 1875 showing only 2,557 county residents. The census figures showed that there were 1,858 white males, 528 white females, 70 black males, 21 black females, 60 Chinese males, and 20 Chinese females. Males of foreign birth totaled 816, and females of foreign birth, 152. In addition, the census enumerated 1,525 Indians living in the county, but these people were not officially classified as county residents.[7]

The population of White Pine County increased slightly to 2,682 in 1880. The largest number of native-born residents came from Nevada, New York, and Utah. The largest foreign-born element in the county was that of Italian extraction, followed in declining order by those from England and Wales, Ireland, British America, China, Germany, and Norway and Sweden. Four percent, or 107 residents, were Chinese.[8]

The population of White Pine County declined by more than 900 persons between 1880 and 1890 to 1,721 in the latter year. Of this total, 1,437 (83.5%) were white and 46 (2.7%)

---

5. State of Nevada, *Revised Laws, 1912* (Carson City, 1912), pp. 423-30. These boundaries were later changed by two acts of the Nevada state legislature. In 1875 a 30- by 90-mile strip on the southern and southwestern border was detached from Nye County and added to White Pine County. Six years later a portion of White Pine was granted to Eureka County, thus moving the upper half of the western boundary of White Pine to the crest of the Diamond Mountains. Russell Richard Elliott, "The Early History of White Pine County, Nevada, 1865-1887," *Pacific Northwest Quarterly*, XXX (1939), 146-47. For further data on this subject see Elliott, *History of Nevada*, pp. 49-122.

6. *American Annual Cyclopedia and Register of Important Events of the Year 1871* (New York, 1872), XI, 542. Also see Scrugham, *Nevada*, III, 266-69.

7. *Census of the Inhabitants of the State of Nevada, 1875*, pp. 822-23, in Appendix to Journals of Senate and Assembly, State of Nevada, 8th Session, Vol. 2.

8. U.S. Department of the Interior, Census Office, *Statistics of the Population of the United States at the Tenth Census* (June 1, 1880) (Washington, Government Printing Office, 1883), I, 520, and Elliott, "Early History of White Pine County," M.A. thesis, p. 53.

were Chinese. No blacks were enumerated that year, but 238 Indians were listed under a separate category.[9]

Population statistics for White Pine County listed 1,961 residents in 1900 (1890-1900 increase – 13.9%) and 7,441 in 1910, the large increase (279.4%) between 1900 and 1910 being attributable largely to the development of the extensive copper mines at Ruth. The number of whites in the county increased from 1,722 in 1900 to 7,246 in 1910, and the number of blacks from 1 to 46. The number of Chinese declined from 31 to 25, but some 45 Japanese were listed in 1910. Persons of "native white-native parentage" increased from 736 (37.5%) to 3,068 (41.2%) and those of "native white-foreign or mixed parentage" increased from 580 (29.6%) to 1,820 (24.5%). Foreign-born whites increased from 406 (20.7%) to 2,238 (30.1%). The foreign-born whites in 1910 came principally from Greece (702), Austria (259), England (224), and Italy (203). The 1900 and 1910 censuses showed that the number of people living in the Osceola Precinct was 176 for both years, while the number residing in the Snake Valley Precinct declined from 144 to 137.[10]

The population of White Pine County increased by 20.1 percent between 1910 and 1920 to 8,935 in the latter year. Of this total, the Snake Valley and Spring Valley precincts had 281 and 143 residents, respectively.[11]

Since 1920 the population of White Pine County has continued to fluctuate with the periodic growth and decline of mining operations. The population statistics for the years 1930-80 were:

1930 – 11,771
1940 – 12,377
1950 – 9,424
1960 – 9,808
1970 – 10,150
1980 – 8,167

In 1970 the population of White Pine County accounted for about 2 percent of the state's total. The county was sparsely populated with an average density of 1.1 persons per square mile compared to a total of 4.4 for the state.[12]

ECONOMIC TRENDS AND CHARACTERISTICS OF WHITE PINE COUNTY

Real estate and personal property valuation in White Pine County also fluctuated with the prosperity of the mines. In 1870 real estate valuation of the county was $961,685, while

---

9. U.S. Department of Commerce and Labor, Bureau of the Census, *Thirteenth Census of the United States Taken In the Year 1910, Statistics for Nevada* (Washington, Government Printing Office, 1913), p. 485.

10. *Ibid.*, pp. 574, 580, 584-85.

11. U.S. Department of Commerce, Bureau of the Census, *Fourteenth Census of the United States: 1920. . . . Population: Nevada* (Washington, Government Printing Office, 1921), pp. 5-6.

12. U.S. Department of the Interior, Bureau of Land Management, *Nevada's Economic Profile: State Economic Structure . . . . Natural Resource Use* (Reno, 1974), xii.

personal property valuation was $1,265,061.51. By 1874 these figures had fallen dramatically to $171,795 and $564,756, respectively.[13]

The general downturn of the mining industry in White Pine County during the late nineteenth century resulted in continuing decreases in real estate and personal property valuation. In 1880, for instance, real estate was valued at $545,687 and personal property at $417,164.[14] Ten years later county real estate was valued at $313,560 and personal property at $346,680.[15] By 1900 the county valuation of real estate had declined to $271,765 and of personal property to $266,085.[16] As a result of the development of the Ruth copper mines in the early twentieth century, the assessed value of county real estate skyrocketed to $4,990,239 in 1910 and $6,856,350 in 1914, while personal property assessment rose to $1,735,516 in 1910 before declining to $1,335,431 in 1914.[17]

In 1970 total personal income for White Pine County was about $27,000,000 or 1.7 percent of the state's total. Per capita personal income was $2,821. The median family income was $9,111, considerably lower than the state average of $10,692. Some 7.3 percent of county families had incomes below the defined poverty level of $3,000 per year. The most important sectors of the economy from the standpoint of personal income were manufacturing, mining, and services, while the lowest contributors were finance, insurance and real estate, agriculture, and construction.[18]

SETTLEMENT OF COMMUNITIES IN SNAKE VALLEY

While no settlement worthy of the designation developed in Spring Valley, several small villages emerged in Snake Valley in the vicinity of present-day Great Basin National Park. These communities include Burbank, Baker, Garrison, and Home Farm.

Burbank

It is generally accepted that the Samuel Hockman family was the first to settle in Snake Valley in 1869. The Hockmans established a small ranch along lower Lake Creek south of present-day Garrison. Soon other pioneers settled near the Hockmans, including Willard Burbank, for whom the town of Burbank was named, Judge Elwin W. Clay who established a ranch at Clay Spring, Thomas Dearden who commenced ranching south of Clay Spring,

---

13. Elliott, "Early History of White Pine County," M.A. thesis, p. 54, and *Report of the Surveyor General and State Land Register of the State of Nevada For the Years 1873 and 1874*, p. 39, in Appendix to Journals of Senate and Assembly, State of Nevada, 7th Session.

14. *Report of the Surveyor General and State Land Register of the State of Nevada For the Years 1879 and 1880*, p. 66, in Appendix to Journals of Senate and Assembly, State of Nevada, 10th Session.

15. *Report of the Surveyor-General and State Land Register of the State of Nevada For the Years 1889 and 1890*, p. 192, in Appendix to Journals of Senate and Assembly, State of Nevada, 1891, 15th Session.

16. *Biennial Report of the Surveyor-General and State Land Register, 1899-1900*, p. 36, in Appendix to Journals of Senate and Assembly, State of Nevada, 1901, 20th Session.

17. *Biennial Report of the Surveyor-General and State Land Register, 1909-1910*, p. 71, in Appendix to Journals of Senate and Assembly, State of Nevada, 1911, 25th Session, Vol. I, and *Biennial Report of the Surveyor-General and State Land Register, 1913-1914*, p. 46, in Appendix to Journals of Senate and Assembly, 1915, 27th Session, Vol. I.

18. *Nevada's Economic Profile*, xii.

and William Cobb who established a ranch at Big Spring at the source of Lake Creek. As the Burbank community continued to grow the first school was opened in 1874 by Mrs. Sam Ketchum, the town site was surveyed in 1878, and the first post office in Snake Valley was established there in 1881 with Mrs. L.S. Schumacher as post mistress. By 1911 some 50 people were living in the Burbank community.

The early history of the settlement revolved mostly around Judge Elwin W. Clay and his wife, Margie Burbank Clay. The Clays built a log ranch house in 1884 that came to be known as "The House by the Side of the Road." The house was near the old pioneer road that now serves as the route for Utah State Highway 21, and friends and travelers were always welcome. Clay had a blacksmith shop where he shod horses, and repaired machinery and farm implements.[19]

Baker

As pioneer families continued to enter the Snake Valley another small community formed along lower Firbush (present-day Baker) Creek. About 1873 Ben Lehman, the brother of Absalom Lehman, settled near the site of present-day Baker. Soon Smith and Curtis, two mine owners from Pioche, commenced farming operations in the vicinity, raising grain, hay, and vegetables for area mining camps. In 1876 George W. Baker, for whom the town, creek, and nearby lake and caves would later be named, arrived and soon established one of the finest cattle ranches in central eastern Nevada. About 1882 Thomas Dearden, a native of England, established the first store in Snake Valley in the Baker community. Known as the "Ranchers' Store," the business served as an all-purpose mercantile outlet for Snake Valley residents. The Baker post office was established near the Baker Ranch on February 18, 1895, discontinued on September 14, 1901, but reestablished on November 1, 1909.[20]

In 1914 P.M. Baker, a son of George, sold his extensive holdings at Baker to Guy Saval, a prosperous Basque sheepman from Elko who converted the ranch from cattle raising to sheep rearing. During the next several years a number of Basque invested in Saval's firm and settled in Baker. Thus, the settlement became commonly referred to as "Basque Town" during World War I. After Saval sold his holdings to the Utah-Nevada Land & Livestock Company in 1921, the old Baker Ranch was converted back to a cattle operation and dude ranch.

After the establishment of Nevada National Forest an 80-acre administrative site was established by the U.S. Forest Service in Baker in 1911. Some eleven years later Lehman Caves was designated a national monument. Thus, the town increasingly came to depend for its economic base on tourism and service-related businesses for recreation users of the national forest and national monument. By 1952 the Baker community consisted of some five ranches and sixteen families.[21]

---

19. Day and Ekins, comps., *Milestones of Millard*, pp. 181, 528; *Days of the Old West* (Deseret, Utah, 1961), n.p.; and Read, *White Pine Lang Syne*, p. 139.

20. Day and Ekins, comps., *Milestones of Millard*, p. 530, and Helen S. Carlson, *Nevada Place Names* (Reno, University of Nevada Press, 1974), p. 45.

21. U.S. Department of Agriculture, U.S. Forest Service, Humboldt National Forest, *Land and Resource Management Plan, Appendices*, 1986, F-4.

Garrison

While the community of Baker was forming, a similar settlement was being established some eight miles southeast along lower Snake Creek. About 1870 Robert and Nick Dowling began farming near the site of present-day Garrison, Utah. Within several years D.A. Gonder and William Gregory had purchased the Dowling lands and commenced cattle raising. Other families, including the Rowlands, Foremans, and Freemans soon settled in the vicinity. In 1876 a cemetery was established, the six-month-old daughter of Charles W. Rowland being the first to be buried there.

In 1898 Garrison officially became a town with the establishment of a post office, named in honor of Mrs. Emma Garrison who was an early area school teacher and served as the first postmistress. That year the first store was opened in Garrison by James and Clay, and later a second store was established by E. Heckethorn. According to a clipping from an unidentified newspaper, the town of Garrison comprised about a dozen families in 1911:

> There are two general stores, here, one owned by Thos. Dearden and the other by E. Heckethorn. There is also an amusement hall and J.H. Dearden operates a hotel. Large crops of hay, grain, vegetables, alfalfa seed and some fruit are raised here. Most of the ranches are watered from the reservoir to the south, but two or three are watered by Snake Creek, a stream rising in the mountain to the west and upon which is also located a saw mill. This would be an admirable location for a flour mill as plenty of grain can be raised in this valley.

Some fourteen years later the Church of Jesus Christ of the Latter-Day Saints organized a branch of its Deseret Stake in Garrison, the first church to be established in the Snake Valley. By the early 1950s the Garrison community consisted of some 12 ranches and 25 families.[22]

Home Farm

The most recent settlement to be established in Snake Valley in the vicinity of present-day Great Basin National Park was Home Farm in 1957. Led by its founder who had taken the name Vitvan, the School of the Natural Order moved its headquarters from San Marcos, California, to Home Farm, some three miles west of Baker. The sect, following the teachings of its founder – a complex mixture of Eastern and Western religions, philosophy, and science, selected the site for its communal settlement, because it was secluded, provided land available for home sites and farming, and possessed a reliable water supply. By the early 1980s Home Farm consisted of some 25 residents who farmed 320 acres while studying and disseminating the teachings of Vitvan.[23]

---

22. Day and Ekins, comps., *Milestones of Millard*, pp. 530-31, and Unidentified newspaper clipping, Vertical Files, Great Basin National Park. By the early 1950s the Garrison community consisted of some 12 ranches and 25 families.

23. *Reno Gazette and Journal*, January 24, 1982, and Waite, "Proposed Great Basin National Park," Part II, pp. 730-31.

TRANSPORTATION AND COMMUNICATION DEVELOPMENT IN SNAKE AND SPRING VALLEYS

As the number of settlers in Snake and Spring valleys increased, there was increasing need for transportation and communication development to tie these areas to the larger Great Basin region. A discussion of this development will deal with roads, railroads, aircraft, newspapers, mail, and electricity.

Roads

Following the arrival of the first settlers in Snake and Spring valleys and the location of mining strikes in the Snake Mountains in 1869 the first wagon roads were built to connect the valley ranches and extract timber and minerals from the range. Often the earliest routes took the most direct paths across the flat valley bottoms between ranches and settlements or followed pre-existing game trails along watercourses that provided relatively easy access into the mountains. As the population in the valleys and mountains increased so did the number of wagon roads.

The first wagon road connecting Snake Valley with other geographical areas extended from southern Snake Valley eastward across the Sevier Desert to the Utah villages of Deseret and Oasis, near present-day Delta. This ninety-mile road entered Snake Valley at Cowboy Pass in the Confusion Range, north of present-day U.S. Highway 6-50, through King Canyon. From there the road continued to Knoll Springs and the Conger and Robison ranches, but it was later extended over Sacramento Pass to Osceola and finally to Taylor and Ward in the Steptoe Valley.

A second road was developed eastward some seventy miles from Snake Valley to the mining town of Frisco, Utah. Following completion of the Union Pacific railway branch line to that town in 1901, this route became the principal freight and mail artery into Snake Valley. Today this general route is traversed by Utah State Highway 21 from Milford to Garrison.

Early freighting operations on these two principal routes required sturdy wagons pulled by four-, six-, or eight-horse teams, depending upon the weight of the load. Freighting was a year-round activity, but it was beset with many problems. In summer dust and lack of water were constant problems while periodic cloudbursts washed out roads and bridges and resulted in mud in which the wagons would sometimes bog down. Winter snows often blocked the roads in the mountains and isolated travelers. When the snows were too deep for wagon travel, pack horses were sometimes used. Spring thawing left the roads a muddy morass that hindered travel.

The first automobile, a Metz, was introduced in Snake Valley by Joseph Dearden in 1910. By the early 1920s the automobile era had arrived, but the cost of gasoline, poor roads, and inadequate road signs hampered travel considerably in central eastern Nevada.

In 1920 the first transcontinental artery was built across the central Great Basin. Known as the Grand Central Highway, it later became U.S. Highway 50. The highway remained a gravel road in Nevada and Utah until 1947 when asphalt surfacing was commenced. That year the section of roadway from Ely to Baker, which had become U.S. Highway 6-50, was paved, and in 1952 the portion from Baker to Delta, Utah, was paved.

Other roads in Snake and Spring valleys were not paved until the mid-1950s. Utah State Highway 21 was paved from Milford to the Nevada state line in 1955, thus providing a second paved approach road into Snake Valley. In Spring Valley, U.S. Highway 93,

connecting Ely with Las Vegas, was paved about the same time, as was a county road serving local ranches.[24]

In response to the these highway improvements and the increasing national interest in Lehman Caves, several roads were built from Baker to the caves between 1920 and 1948. In 1920 a county road was constructed to Lehman Caves, much of the work being done by Baker residents on a volunteer basis in the hope that better roads would aid the growth of tourism.[25] This road branched off from present-day Nevada State Highway 73 just below Baker, crossed Lehman Creek about five miles from the cave, and led to the cave entrance through the present-day Great Basin National Park residence-maintenance area. Later a second approach road to the cave was built by the county, commencing just above Baker, passing through the present-day Home Farm, and paralleling Lehman Creek for a distance before crossing it just west of the northeast boundary corner of the national monument. These roads were mediocre at best, being characterized by mud, rocks, washouts, dust, ruts, and chuckholes. Finally in 1947, after U.S. Highway 6-50 had been paved between Ely and Baker, construction commenced on Nevada State Highway 74 from Baker to Lehman Caves. This paved highway, which was completed in 1948 and replaced the two earlier approach roads, has served as the entrance to Lehman Caves and Great Basin National Park to the present time.[26]

By the early 1970s there were reportedly some 152 miles of road in the Snake Range, including nearly 84 miles constructed by the U.S. Forest Service and 66 miles built by the county and local mining, grazing, and timber interests. Most of this mileage was primitive, low standard and unsurfaced roadway, used primarily by local residents. With the exception of the paved roads in Lehman Caves National Monument and Asilo Verde Drive built by the Forest Service to the Wheeler Peak Campground in 1967, most of these roads were generally suitable only for jeep or high clearance vehicles.[27]

Railroads

Until the early 1900s Snake and Spring valleys were geographically isolated from the region's transcontinental railroads. During the first two decades of the twentieth century, however, three branch lines were built from these routes to Frisco and Erickson Siding, Utah, and Ely, Nevada, in response to mining development operations. These rail lines contributed to the economic and transportation development of the area.

In 1901 the first branch line was constructed from the Union Pacific line at Milford to Frisco for the purpose of exporting ore to Salt Lake City for refining. The 15-mile branch line thus provided Snake Valley residents with accessible rail service. Although Frisco was nearly

---

24. Trexler, *Lehman Caves . . . . Its Human Story*, pp. 42-44. An entertaining description of an automobile trip from Tonopah to Baker in August 1922 may be found in Cada C. Boak, "Dedication of Lehman Caves National Monument: Ascent and Perilous Descent of Mount Wheeler, August 1922," *Nevada Historical Society Quarterly*, XVI (Summer 1973), 102-04.

25. *Ely Record*, July 20, 1920.

26. Trexler, *Lehman Caves . . . . Its Human Story*, pp. 42-44. During the late 1970s, Nevada state highways were renumbered. Thus, Nevada 73 became Nevada 487 and Nevada 74 became Nevada 488.

27. Waite, "Proposed Great Basin National Park," Part II, p. 627.

seventy miles southeast from Garrison, this branch line aided Snake Valley ranchers and Snake range mining districts by providing them with an outlet for their products.[28]

On September 29, 1906, the Nevada Northern Railroad was completed from the Southern Pacific line at Cobre, Nevada, to Ely for the purpose of transporting the recently-discovered copper deposits at Ruth. This line extended for some 150 miles and served ranchers in both Snake and Spring valleys. It was particularly important to residents of Spring Valley since it saved them from crossing Sacramento Pass to reach Frisco.[29]

In 1917 the Deep Creek Railroad was completed from the Western Pacific Railway line at Wendover, Utah, southward to Erickson Siding, some 80 miles from the Lehman Caves area. This standard gauge line was constructed to tap the rich ore deposits of the Gold Hill area on the northern end of the Deep Creek Range. It provided a rail outlet for Snake Valley stockraisers as well as mining operators in the Snake Mountains.[30]

Aircraft

Because of the relative inaccessibility of many portions of Snake and Spring valleys, small aircraft have become important to area ranching and mining interests during the twentieth century. Several of the larger ranches have unimproved dirt landing strips for small planes. There are two unimproved dirt airfields at Garrison and Baker. The former is located one mile south of town and has two runways which are approximately 3,500 and 2,000 feet long. The Baker landing strip is located adjacent to present Nevada State Highway 487 about one mile south of the community and has a smaller landing area. The nearest commercial airport to present Great Basin National Park is Yelland Field in Ely.[31]

Newspapers

One of the early means of communication in White Pine County was the newspaper. During the White Pine mining rush the first issue of the *White Pine Daily News* was printed on December 26, 1868, at Treasure City by W.H. Pitchford and Robert W. Simpson. The press and material, as well as the publishers and printers, had come from the *Reese River Reveille* office at Austin, the equipment having first been used in printing the *Silver Bend Reporter.* The *News* began as a weekly, but by February 1869 the newspaper was advanced to a tri-weekly and in March to a daily. In January 1870 the newspaper was moved to Hamilton, the seat of recently-established White Pine County, under the leadership of its new editor and part-owner, William J. Forbes. The newspaper remained in Hamilton until November 9, 1878, when its operation was suspended for two years. The paper resumed publication in April 1880 under its new owners and editors, W.R. Forest and W.L. Davis, before being moved to Cherry Creek in January 1881, Taylor in August 1885, and Ely in September 1888. The newspaper was transferred to East Ely in November 1908, where it remained until going out of publication in June 1923. Thus, the newspaper, which spanned some 54 years, was published in virtually all of the county's mining boom

---

28. *Ibid.*, Part II, p. 628.

29. Read, *White Pine Lang Syne*, p. 284.

30. Waite, "Proposed Great Basin National Park," p. 629. For more data on the Deep Creek Railroad, see Myrick, Railroads of Nevada, I, 337.

31. *Ibid.*, Part II, pp. 629-30.

towns with the exception of Ward where the *Ward Reflex* was published during that town's boom years.

The other principal newspaper to emanate from the White Pine mining rush was the *Daily Inland Empire*, first published at Hamilton in March 1869 by James J. Ayers and Charles A.V. Putnam. After the *White Pine Daily News* moved to Hamilton in January 1870 a fierce rivalry followed between the two publications, and on April 10, 1870, the *Daily Inland Empire* suspended operations.

Ward had several newspapers during its boom days in the late 1870s and early 1880s. In October 1876 Mark W. Musgrove commenced the *Ward Miner* as a semi-weekly (later enlarging it to a tri-weekly), but sold it to Robert W. Simpson in April 1877. Simpson turned the newspaper into the successful *Ward Reflex*, a semi-weekly publication until becoming a weekly in October 1877. The newspaper was moved to Taylor in June 1884 where it became known as the *White Pine Reflex*. The following year it was sold to Davis, owner of the *White Pine Daily News* who suspended publication of the *Reflex*. In 1881 three other short-lived newspapers commenced publication in Ward – *Spirit of the West, Union*, and *Watchman*.

Cherry Creek had a newspaper that began publication in January 1878. The *Independent* was published by Benjamin M. Barney for two months, first as a tri-weekly and then as a weekly. In March 1878 Barney moved to Reno to help found the *Daily Record* after selling the *Independent* to A.V. Hoyt, a Cherry Creek attorney who published it as a weekly until 1879.

There were three other early newspapers that were published for brief periods in the White Pine area. These included the *Shermantown Reporter* established in 1869 by Edward F. McElwain and V.E. Allen, the *White Pine Evening Telegram* published at Hamilton during the winter of 1869, and the *Schell Creek Prospect* established at Schellbourne in 1872 by Forbes and Pitchford.[32]

The four major White Pine County newspapers commenced in the twentieth century were all based in Ely, which had become the county seat in 1885. In 1902 J.M. Lynch retired from partnership in the *White Pine Daily News* to commence a new paper, the *White Pine Miner*, but competition forced suspension of publication in February 1903. Following his sale of the *White Pine Daily News* in 1904, John D. Crossette formed a partnership with Benjamin Dial, and on March 4, 1905, they published the first issue of the *Ely Mining Record*. Later, the paper became the independent weekly edition of the *Ely Daily Times*. In the fall of 1906 D.S. Dickerson sold his interest in the *White Pine Daily News* and commenced publication of the *Ely Mining Expositor* in October. The newspaper was expanded from a weekly to a daily in May 1907, but it ceased publication in January 1915. Some five years later, on April 20, 1920, the *Ely Daily Times* began publication with Vail M. Pittman, a brother of U.S. Senator Key Pittman and himself a later governor of Nevada, serving as editor. The newspaper ultimately purchased the aforementioned *Ely Mining Record*, which became a weekly edition of the *Times*.[33]

---

32. Hubert Howe Bancroft, *The Works of Hubert Howe Bancroft, Volume XXV, History of Nevada, Colorado, and Wyoming, 1540-1888* (San Francisco, The History Company, Publishers, 1890), p. 308; Angel, *History of Nevada*, pp. 330-32; Elliott, "Early History of White Pine County," M.A. thesis, pp. 73-77; and Richard E. Lingenfelter, *The Newspapers of Nevada, 1858-1958: A History and Bibliography* (San Francisco, John Howell-Books, 1964), pp. 33-34, 41-42, 56-57, 76-77, 79-80, 97, 118-19.

33. Lingenfelter, *Newspapers of Nevada*, pp. 120-22.

Mail

Regular mail service in Snake Valley was inaugurated on March 28, 1881, after establishment of the valley's first post office at Burbank. Lizzie Schumacher was appointed as postmistress and served in that capacity for the next eighteen years. At first the mail came to the valley from Pioche. About fifty miles north of Garrison was a salt marsh, and wagonloads of salt were hauled by ox team or mule team to Pioche to be used in the ore smelter mills. The freighting outfits took the outgoing mail from Snake Valley with them and returned with the incoming mail.

Later in 1881 a tri-weekly mail route was established from Taylor and Osceola to Frisco, Utah. The line was operated by Gilmer and Saulsbury under a four-year contract for which they received $36,000 per year. The mail was transported in one- or two-horse rigs, but was eventually terminated because of mail frauds.[34]

According to B.F. Miller, an early resident in eastern Nevada, there were 2,792 miles of stage mail routes in White Pine County prior to 1890. All routes were awarded by the government to "eastern professional bidders," subcontracts being awarded by the contractors to local people with the contractors retaining most of the money. These routes were:

> Ely to Eureka, ninety miles, six round trips a week, equivalent to one thousand and eighty miles of service.
>
> Cole Creek to Eureka, fifty miles, one trip a week, one hundred miles.
>
> Cherry Creek to Wells, one hundred miles, three round trips weekly, six hundred miles.
>
> Cherry Creek to Aurum, thirty miles, one round trip weekly, sixty miles.
>
> Cherry Creek to Ely, fifty miles, two round trips weekly, two hundred miles.
>
> Osceola to Geyser, thirty miles, one round trip weekly, sixty miles.
>
> Ely to Frisco, Utah, one hundred and forty-three miles, two round trips weekly, five hundred and seventy-two miles.
>
> Ely to Sunnyside, sixty miles, one round trip weekly, one hundred and twenty miles.

Miller elaborated further:

> At this time there was keen bidding by the easterners, who cut the contract figure at each successive letting of bids, and as a consequence the local sub-contractors, who carried the burden, were compelled to take less for their services. The result was that the service suffered and the sub-contractors in many cases were unable to meet their obligations, so that at times the guarantors were compelled to step in and take over the service.
>
> Old carts, buckboards and dilapidated wagons, in fact almost anything that could be pressed into service, were used for carrying the mails, so that travelers

34. Angel, *History of Nevada*, p. 107, and Read, *White Pine Lang Syne*, p. 139.

who wished to visit the different towns on the routes could not secure adequate accommodations and were forced to hire livery rigs. This naturally also cut into profits that should have been made by the mail carriers.

As a result of the unsatisfactory mail service in the county, W.N. McGill and Abner C. Cleveland agreed to underwrite the $100,000 bond of Miller and "help finance and equip the various routes" if he would secure the mail contracts and act as general manager of the service. Thus, Miller secured all the mail routes in White Pine County in 1890 and operated them until 1904. By the latter date, there were 5,638 miles of mail stage lines in the county, covering the following routes:

> Cherry Creek to Wells, six times a week, one thousand two hundred miles.
>
> Cherry Creek to Aurum, three times a week, one hundred and eighty miles.
>
> Eureka to Ely, six times a week, one thousand and eighty miles.
>
> To Hamilton, twice a week, operating by way of Six-Mile House, Currant Creek and Duckwater, two hundred and eighty miles.
>
> Cole Creek to Eureka, twice a week, two hundred miles.
>
> Ely to Frisco, three times a week, eight hundred and fifty-eight miles.
>
> Osceola to Pioche, twice a week, three hundred and sixty miles.
>
> Ely and Sunnyside to Pioche, three times a week, seven hundred and twenty miles.
>
> Aurum and Cleveland to Osceola, twice a week, two hundred and sixty miles.
>
> Ely to Duck Creek, twice a week, eighty miles.
>
> Hamilton to Stockville, twice a week, one hundred and twenty miles.
>
> Cherry Creek to Ely, three times a week, three hundred miles.[35]

During the late 1890s the subcontract for the mail route between Frisco and Ely was awarded to Thomas Davis and Joseph Dearden. Since Garrison was centrally located between these two towns, a post office was established there in 1898 to serve as headquarters for the stage service. Mrs. Emma Garrison, a school teacher for whom the town was named, became the first postmistress. The mail was carried by coach on a tri-weekly basis, but mail had to be delivered by horseback when snow blocked the mountain passes.[36]

Between 1882 and 1927 additional post offices were established in the Snake and Spring valley areas to provide mail service to mining camps and farm settlements in the vicinity of present-day Great Basin National Park. These post offices included:

---

35. Miller, "Nevada In the Making," 432-35.

36. Day and Ekins, comps., *Milestones of Millard*, p. 531.

Baker – February 18, 1895-September 14, 1901
November 1, 1909-
Cleveland – July 24, 1882-February 15, 1906
Cleveland Ranch – April 19, 1917-November 17, 1924
Shoshone – May 9, 1896-August 31, 1959
Taft – February 23, 1909-April 19, 1917
Tungsten Mine – October 14, 1916-June 30, 1917
Yelland – November 17, 1924-January 15, 1927[37]

Electricity

The isolation of Snake and Spring valleys until recent years is demonstrated by the fact that electricity was not introduced until the early 1970s. While portions of Snake Valley had electrical power as early as December 1970, construction of the rural electrification cooperative system was not completed by Mt. Wheeler Power, Inc., until March 1973. This event was heralded as one of the most significant improvements to be introduced in the valleys during the twentieth century. After electricity was introduced a television translator station was built in 1974, thus bringing daily communications to the area. Prior to that time area residents relied on radio broadcasts, but the vicinity always has been and continues to be a relatively poor radio reception area.[38]

DEVELOPMENT OF LUMBER INDUSTRY IN THE SNAKE RANGE

As settlers entered central eastern Nevada to participate in the mining and agricultural development of the area, large amounts of timber were required. Lumber was required to shore the mine shafts, construct and heat buildings, install water flumes, fuel the mills, and make coke for smelting the ore. Ranchers needed lumber for houses, barns, corrals, fences, and heating purposes. Thus, the timber industry quickly became a significant part of the economic development in the Snake Range region.

Mining operations in the Snake Mountains that commenced in the late 1860s led to logging of higher elevation forest species such as Douglas fir, white fir, and Englemann spruce. Even the largely inaccessible bristlecone pine stands were not immune to logging as there is evidence that such trees on the slopes of Mount Washington were used to develop the St. Lawrence Mine and related operations.

With the arrival of settlers in Snake and Spring valleys logging became a necessity for the development of homesteads, farms, and ranches. The first timber to be cut consisted of native cottonwood trees that lined the lower stream courses entering the valleys and the accessible low elevation stands of juniper, pinyon pine, and ponderosa pine. The cottonwoods and pines were used for construction of rough-hewn pioneer homes, ranch buildings, and corrals, while the juniper was used primarily for building fences. The local forests also supplied settlers with pinyon pine nuts and wood for fuel.

---

37. *Cultural Resource Record of the Moriah Planning Area*, pp. 97-98. For more data on postal service in Nevada, see Robert P. Harris, *Nevada Postal History: 1861 to 1972* (Las Vegas, Nevada Publications, 1973). Despite the establishment of these early mail routes and post offices, daily mail service to the Snake Valley communities did not commence until 1988. Prior to that time mail was delivered three times per week. United Parcel Service provided fast freight delivery in the mid-1970s, and Federal Express began service to the valley in 1989. Letter, Denys Baker to author, January 28, 1990.

38. Letter, Denys Baker to author, January 28, 1990. For more data on the introduction of electricity see Jeannette S. Griggs, Let There Be Light: Mt. Wheeler Power REA Cooperative 999 (Forest Grove, Oregon, Times Litho Print, 1974).

After the timber was cut, horse-drawn drag-line teams were utilized to bring the logs out of the canyons. The logs were then loaded on wagons and hauled to the settlements. Often it would take up to three days to bring the logs out of the mountains.[39]

Visitors to the Schell Creek, White Pine, Egan, and Snake ranges in the late 1800s noted the stands of timber. In his *History of Nevada* Angel discussed the timber resources in the various mining districts of the region. In the Lincoln Mining District which included Mount Washington and Lincoln Peak on the west side of the Snake Range, for instance, he noted that timber was abundant, consisting of fir, white and yellow pine, tamarack, juniper, nut pine, and mountain mahogany. In some parts of the district trees were "three feet in diameter and 175 feet high."[40]

To serve the lumber needs of the area's settlers and mining operations sawmills were erected. In 1869, for instance, twelve sawmills were in operation in the White Pine Range to provide timber for the mining rush, lumber being "worth from $100 to $200 per thousand." By 1881, according to Angel, there was still "a large quantity of sawable timber on the Snake range, and considerable on the Schell Creek range." All of the mountains in the county remained "well covered with nut pine and mountain mahogany;" which were "excellent for charcoal and fuel."[41]

Numerous sawmills were erected in the Snake Range during the late nineteenth and early twentieth centuries. Mills were located in Strawberry, Lehman, Baker, Snake, and Lexington creek canyons and in the South Fork of the Big Wash, all tributaries to Snake Valley.[42]

The burgeoning sawmill industry in the Snake Range boomed with the emergence of the Osceola Mining District as a prime gold-producing area in the 1870s and the construction of the West and East ditches in the late 1880s. The ditches, comprising some 34 miles of waterway, required vast amounts of timber since wooden flumes were necessary to carry the water across the mountain ravines and alluvium bottoms. Several mills, including one owned by Calvin Warlick in the South Fork of Big Wash and one operated by Tilford and Mercham in Baker Creek Canyon, contributed lumber for the construction effort, but the mill erected by W.H. Hendrie on Hendrie Creek near Mount Moriah was the largest supplier.[43]

The Hendrie sawmill continued to operate throughout the 1890s. During that decade James H. Marriott, who managed extensive mining operations at Osceola, purchased the mill. In 1899 W.A. Butson bought the mill and resumed its operation under the management of Charles Bliss of Snake Valley while at the same time looking for a new location for the mill where timber was more plentiful.[44]

---

39. *Cultural Resource Record of the Moriah Planning Area*, p. 95, and Waite, "Proposed Great Basin National Park," Part II, pp. 612-15. For further information on the historical uses of Nevada's woodlands, see James A. Young and Jerry D. Budy, "Historical Use of Nevada's Pinyon-Juniper Woodlands," *Journal of Forest History*, July 1979, 113-21.

40. Angel, *History of Nevada*, p. 654.

41. *Ibid.*, pp. 648-49.

42. Read, *White Pine Lang Syne*, p. 154.

43. *Ibid.*, and Miller, "Nevada in the Making," 364.

44. *White Pine Daily News*, October 5, 26, 1899.

The mill operated by Warlick in the South Fork of Big Wash was generally referred to as the Lexington sawmill during the late 1880s and 1890s. On February 15, 1900, the *White Pine Daily News* reported that Joseph Stoddard had "leased the Lexington sawmill" and would "soon be ready to fill orders."[45] The newspaper noted on June 7 that William Justesan made a trip to "Stoddard's Mill" and "loaded with lumber for J.H. Marriott of Osceola."[46] With the rising demand for lumber in Ely, a number of men, including W.B. Graham, Joseph Gilbert, George Gilbert, and Ed Lake, began hauling lumber to that town during the fall of 1900 and spring of 1901.[47] The mill shut down temporarily in August 1901, but by early 1902 Stoddard was again hauling lumber to Ely with "his four big grays."[48] In May 1902 it was reported that Stoddard was continuing to produce "first-class lumber" at his Lexington sawmill and hauling it to Ely.[49]

By the fall of 1902 the sawmill in the South Fork of Big Wash was being operated by the New York and Nevada Copper Company. Apparently, Rube Van Volkenberg managed the mill for the Ely-based firm, because the *White Pine Daily News* reported on November 20, 1902, that he was operating the mill, "turning out several thousand feet of lumber each day."[50]

Nearly three years later, on September 7, 1905, the newspaper reported that the Ely-based Nevada Consolidated Copper Company had "contracted with O. Remmen to take all the lumber he can turn out at the company's saw mill in Snake Valley." Remmen, it reported, "left last week for the scene of his new labors" and planned to "start the mill up at once." The article noted that "good saw logs" were "plentiful in the immediate vicinity of the mill," and that Remmen expected "to keep the mill running at its full capacity the remainder of the season."[51]

By the early 1900s another sawmill was in operation in upper Snake Creek Canyon below present Johnson Lake. On September 4, 1906, the *White Pine Daily News* reported that the "Tilford brothers have just completed a deal for the sawmill at the head of Snake Creek and Blackhorse will soon be a wooden town, instead of canvas, as now."[52] In later years this mill would be used by Alfred Johnson to cut lumber while developing his mining operations near Johnson Lake.

When L. Von Wernstedt of the U.S. Forest Service investigated the Snake Range for possible inclusion in a national forest, he commented on the existing conditions and future prospects of the timber industry in the area. He noted:

---

45. *White Pine Daily News*, February 15, 1900.

46. *White Pine Daily News*, June 7, 1900.

47. *White Pine Daily News*, October 18, 1900, and January 3, May 2, 1901.

48. *White Pine Daily News*, August 8, 15, 1901, and January 2, 1902.

49. *White Pine Daily News*, May 29, 1902. Also see *ibid.*, February 20, April 3, 1902.

50. *White Pine Daily News*, November 20, 1902.

51. *White Pine Daily News*, September 7, 1905. By the early 1920s M.H. Osborne, a rancher in Big Wash, owned the sawmill in South Fork as well as one along Strawberry Creek.. Assessment Book, 1923, White Pine County, Vol. 2, White Pine County Courthouse, Ely.

52. *White Pine Daily News*, September 4, 1906.

Lumbering has been carried on in the Snake Mountains more or less intermittently since the sixties. The timber has been used for building up the various mining camps, Ward, Ely, and Osceola. There have been mills on Williams Creek on the west side, and on the Strawberry, Snake, and Lexington creeks on the east side of the Snake range proper. On Mt. Moraja there have been mills in two of the canyons on the south and east side, Williams Canyon on the south and Henry Canyon. At the present there are three mills in the Snake Mountains, on the east side and in the canyons just mentioned. There is no mill on Mt. Moraja; the timber is less accessible on this mountain. These mills at the time of examination were cutting lumber for the mines at Ely and for a new mine in the Moraja range. Probably since the railroad was built into Ely no timber is cut any more for use in that place. It has not been possible to ascertain how much lumber has been cut from the Snake range but probably 10 to 15 million feet has been cut at various times. The lumber cut has been mainly yellow pine, Douglas fir, and some balsam. The cuttings have all been confined to the lower elevations and no spruce has been touched. There are no bodies of yellow pine of any importance outside of the canyons where the mills are located, and most of it has been cut out. The amount of yellow pine left is small, probably for the whole range not over 4 million feet besides young growth and trees less than six inches in diameter.

Regarding the amount of timber on the Snake range it can not be given except very roughly. About 65,000 acres are timbered, half of it being dense timber. Counting in everything, saw timber and prop timber, the heavy areas as mapped at least average 2,000 feet per acre while they sometimes run 8,000 feet per acre. This would indicate that there is, at the least calculation, 75 million feet on the Snake range and 10 million on Mt. Moraja. How much of this timber that is commercial will depend not only on the location but, in the main, on the need for lumber in the locality.

Lumber brought from the railroad could not be obtained for less than $55 to $63 in this country. The cost of lumber is now from $23 to $30 where it is used, so that evidently there could be spent at least $15 to $20 on increased cost of logging before these prices were reached. The cost of logging is now given as $9. It is evident that with the cost of logging reaching $25 to $30 almost any timber in these mountains could be reached and that at least 35,000,000 feet might be called merchantable where lumber must be had; most of this very likely could be logged for $15. Such a high price would probably be almost prohibitive for settlers and the cuttings for mining purposes should therefore not be located on the best sites. It is possible that mining timber can still be brought into Ely for the same cost as it is now obtained for on the railroad if the companies operate the mills themselves, as was done at the time of the examination. Cost of lumber at the mill is $18. The demand for lumber is uneven and the amount required by the settlements is naturally inconsiderable and will be at intervals only.[53]

During the 1930s James Deardon opened a sawmill at Garrison. By 1961 he had cut and sawed usable lumber in excess of 1,000,000 board feet, and in 1957 he harvested some 30,000 board feet of ponderosa pine from the North Fork of Big Wash. After the Forest

53. "Report on the Proposed Ely, Steptoe, Osceola, and Snake National Forest, Nevada," by L. Von Wernstedt, Forest Expert, Forest Service, 1906, RG 49, National Archives and Records Administration, Washington, D.C.

Service established the Wheeler Peak Scenic Area in 1959, timber-cutting was excluded from that portion of the Snake Range. Thereafter, the timber supply for the sawmill came largely from Mt. Moriah.[54]

54. 1961 Hearings, p. 78.

CHAPTER NINE
EUROAMERICAN AND NATIVE AMERICAN RELATIONSHIPS IN NEVADA: 1850s-1910s

INTRODUCTION

After reviewing the historical development of mining operations in the Snake Range and agricultural and socioeconomic activities in Snake and Spring valleys, it is important to understand the impact of Euroamerican culture on the lifeways, customs, and welfare of the Native Americans in the area. Thus, this chapter will present a discussion of the interaction between the two cultures and the ultimate demise of Native American culture in the face of the onslaught of Western civilization.

EARLY EUROAMERICAN AND NATIVE AMERICAN INTERACTION IN NEVADA PRIOR TO THE EARLY 1860s

Contacts between Euroamericans and Native Americans in present-day Nevada commenced, so far as is known with certainty, in the 1820s when British and American fur trappers and Mexican traders entered the Great Basin. Contacts were sporadic for several decades, and native life was apparently altered little by these direct intrusions except in southern and eastern Nevada where New Mexican, British, American, and Ute slave raiders and travelers precipitated population dislocations, and along the Humboldt River where fur trappers helped to deplete the native food supply and create sporadic disturbances. More intensive relationships commenced gradually during the 1840s, culminating in the horde of Gold Rush travelers in 1849 and the eventual establishment of non-Native American settlements in the Carson Valley, Snake Valley, and Las Vegas areas, primarily during the 1850s.

It would appear that most intruders did not appreciate or did not care about the importance of the natural food supply for the Native Americans. The Humboldt River Valley, Carson Valley, and Las Vegas regions were depleted of food resources, and the Indians were forced to make adjustments in their life patterns. The trappers, traders, and emigrants impacted adversely the vegetation and wildlife of these areas, thus disrupting the economy and lifeways of the Native Americans who occupied the land. In retaliation, the Southern Paiutes initiated raids in Southern California, while the Northern Paiutes, Shoshones, and Washoes responded with occasional armed resistance to white intrusion. On the whole, however, the natives were extremely cautious in their response, and several leaders counseled friendship with the invaders.

Nevertheless, Native Americans were often offended by white attitudes as they seldom demonstrated respect for native property rights and often seized desirable natural resources without offering to negotiate or purchase. To protect settlers and emigrants the U.S. Government established boundaries in Indian country based on Euroamerican standards of fixed landholdings, thus ignoring traditional Indian claims to flexible territories considered as the property of specific tribal and linguistic groups. Regarding land, lakes, pine-nut groves and other resources as their property, the natives attempted to prevent white use. These early efforts to protect native property were nullified, however, by the growing strength of the Euroamerican population and neglect by the federal government.

By the winter of 1859-60 conditions in present-day Nevada had reached a point where warfare was almost inevitable. The natives had suffered from a severe cholera epidemic several years before, and this was followed by several winters in which Indians starved to death. Seeing the connection between starvation and white encroachment on their hunting, fishing, and food-gathering grounds, Indians in present-day western Nevada were forced to

steal. Tensions were increased, because reserves that had been set aside for Indians in Ruby and Deep valleys of present-day eastern Nevada had been allowed to disappear, apparently because of lack of funds and frequently changing personnel. White promises of aid were seldom fulfilled, and gradually Indians came to discount and despise the word of government officials. Fueled by white atrocities against Indian women and children, hostilities developed into the Pyramid Lake War.[1]

Near the end of this brief but bloody war white military officers met with Paiute Chief Numaga. He gave an impassioned speech which summarized, in his broken English, the bewilderment of his culture:

> Irishman come – Dutchman come – American man come – China-John come, digum hole – find up money heap – good money find 'um, Paiutes' money, no give 'um Paiutes money! White man put him hand over money, and no give Paiute any money – give 'um Paiute heap God-dam, shake him – beat him – kill him – Big Father help Dutchman – help Irishman – Help American man – help China-John man – why no help keep Paiute man? Paiute man heap good long time – no give 'um nothing – Paiute man no kill 'um whites – whitey man kill Paiutes – Paiutes heap fight 'um – Solder man come – Numaga no sabe! Numaga fight – Numaga die, no care no more"[2]

As a result of the Pyramid Lake War the federal government gave some attention to the condition of native Nevadans. Reserves were established on an informal basis at Pyramid Lake and Walker River, some improvements were made at the latter reserve, and supplies were distributed occasionally. However, troops were stationed permanently at Fort Churchill to prevent the natives from retaliating effectively against further intrusion.

On the whole, however, the early 1860s were a depressing period for the Nevada Indians with little being done to improve their lot. A cavalry lieutenant passing through Ruby Valley in 1861 reported to his superiors the destitute condition of the Indians:

> They usually [live] during the winter on pine nuts and grass seed, together with what little game they [can] kill. There are no pine nuts this year, and all, or nearly all, of their grass has been cut by the stage company or citizens living on the road. The chiefs and also the Indian agent tell me that unless [the] Government gives them something to eat they will starve to death this winter. If any outbreak occurs it will be because they are driven to it by starvation.[3]

Many travelers were appalled by the degraded Indians in eastern Nevada and wrote of their experiences with these people in condescending terms. One such account was provided by Mark Twain in *Roughing It* (1860):

> Along the road and hanging about the stations, were small lean, "scrawny" creatures; in complexion a dull black like the ordinary American negro; their faces and hands bearing dirt which they had been hoarding and accumulating for months, years, and even generations, according to the age of the proprietor; a silent, sneaking, treacherous-looking race; taking note of everything, covertly,

---

1. Jack D. Forbes, *Nevada Indians Speak* (Reno, University of Nevada Press, 1967), pp. 1-3.

2. Quoted in Ferol Egan, *Sand in a Whirlwind* (New York, Doubleday & Co., 1972), p. 269.

3. U.S. War Department, *War of the Rebellion Records*, Series I, Vol. L, Part I (E.M. Balser to the Adjutant of Fort Churchill, Nevada, October [20], 1861), p. 667.

like all the other "Noble Red Men" that we (do not) read about, and betraying no sign in their countenances; indolent, everlastingly patient and tireless, like all other Indians; prideless beggars . . . hungry, always hungry, and yet never refusing anything that a hog would eat, though often eating what a hog would decline; hunters but having no higher ambition than to kill and eat jackass rabbits, crickets, and grasshoppers, and embezzle carrion from the buzzards and coyotes; savages who, when asked if they have the common belief in a Great Spirit show a something which almost amounts to emotion thinking whisky is referred to; a thin scattering race of almost naked black children . . . who produce nothing at all, and have no villages, and no gatherings together into strictly defined tribal communities – a people whose only shelter is a rag cast on a bush to keep off a portion of the snow, and yet who inhabit one of the most rocky, wintry, repulsive wastes that our country or any other can exhibit.[4]

The Nevada Shoshones and Gosiutes engaged in occasional warfare with whites along the Humboldt River and the Overland stage route during the early 1860s. This intermittent warfare was stimulated by the continued destruction of native food sources, the lack of reservations in northern and eastern Nevada, and the appropriation of important food-gathering sites by the Overland Stage Company. Livestock overgrazed the depleted fragile grasslands, thereby interrupting the Native American food-gathering cycle. The establishment of Fort Ruby, the hanging and shooting of natives by whites, and the loose organization of the Shoshones, however, served to prevent the outbreak of large-scale warfare.

As a result of Gosiute raids on the Overland Stage Company lines, a Utah Superintendency subagent met with them at Pleasant Valley near present-day Provo in 1859. He attempted to pacify the Indians with promises of aid, little of which would materialize. The lengthy subagent's report of the council read:

On the 25th of March, when I arrived at "Pleasant valley," I found about one hundred Indians, in all, waiting for me. They complained of being hungry, not having had anything to eat for some days. I asked them why the others did not come in? They said that they "were afraid that the soldiers would kill them." They thought it was a trap to have them all killed, because they had been stealing. I sent out more runners to bring them in. Five days after, my runners returned, and said they would not come, as they were afraid of being killed.

On the 2d day of April, I had a beef killed, and held a council, with seventy-three warriors present. The first thing, we proceeded and elected "Arra-wonnets" (an old man) "head chief," and "Ka Vana" sub-chief, without any opposition. I then told them I had come here to say that the "great father" wishes to treat you as his children, and will make you a good farm, if you will work, so that you will have something to eat. He will help you to build your "wigwams," and help to clothe you, if you will do as he tells you. Are you willing to go and work like the whites, and help to raise grain, from which you can make bread? They all answered, "Yes; that was good talk; it was what they wanted." I told them I had heard of many cattle and mules being stolen by them, and that the mail had been stopped and fired on while passing through this country, with letters to their "great father;" and I would forgive them this time; but if I heard of anything of the kind occurring again, the "great father" would send many soldiers out, who would not leave one of them alive. Their chief said, in reply, that none of his people should do anything wrong; they would all be friends to the whites; and, should any depredations be committed

4. Mark Twain, *Roughing It* (Reprint ed., Cutchogue, New York, Buccaneer Books, 1986), pp. 154-56.

by any of his people, he would bring them in, and justice should be done. I then had a beef killed for them, made them some presents, and they were all well pleased. On the 3d, they all left for "Deep Creek."

I will here speak of a band of the "Gosha-Utes" that live fifty miles south of this, and about one hundred and fifty miles west of Fillmore. They numbered about one hundred, under chiefs "Ta-goo-pie" and "Wan-na-vah." I am told that they are engaged in agriculture: we met two of them out hunting with squaws, well mounted on good horses. I got them to return with me to Pleasant valley, and I am much indebted to them for their assistance. They were present at both councils, and in council they told those miserable wretches if they did not go to work and quit stealing, they would bring their warriors over and kill every one of them; that they were dogs and wolves, and not fit to live.

They were very anxious for me to come and see them, and give them some instructions about farming. They have no implements of any kind, and I have sent into the city for twelve hoes for them. They say that no agent has ever visited them. From all accounts, they have from thirty to forty acres down in wheat this year, and the only way they have to turn up the ground is with sticks.[5]

TREATIES WITH GREAT BASIN NATIVE AMERICANS DURING THE 1860s

During the early 1860s the federal government began to negotiate treaties with Great Basin Indian tribes, in part to pacify the natives and in part to obtain the right of way for a transcontinental railroad. Treaties, generally unfavorable to the Indians, were negotiated with the Shoshones and Bannocks of Utah and Idaho, the Yahuskin Northern Paiutes of Oregon, and the Gosiute Shoshones of the Deep Creek area.[6]

In August 1861 a Utah Indian agent met with Sho-kub, chief of the Western Shoshones in Ruby Valley. Sho-kub declared that his people needed provisions and blankets "on account of the monopoly of the grass in their country by the [Overland] mail company to feed their stock, which deprived them of the seed which they have heretofore used as an article of food." The Deep Creek and Ruby Valley reserves or "farms" established earlier had been abandoned by the government. Councils were held with the Indians at Deep Creek, Ruby Valley, Schell Creek, and Spring Valley Buttes, and the agent learned that the natives could no longer fish, because "the overland mail company has built stations . . . and located men and quartered stock about these spots, and the Indians no longer visit them." By late December 1861 Sho-kub had died, his succession had been disputed, Indians had raided mail stations in the Ruby Valley, and troops had been dispatched from Camp Floyd. In addition, garrisoned forts were established at Fort Ruby and Schell Creek, manned by California and Nevada volunteers. During 1862 the Gosiutes of White Horse were reported to be extremely destitute, and it was said that the Shoshones would have starved but for periodic aid from the Overland Stage Company employees.

New hostilities erupted in 1863 with attacks perpetrated by both sides. Stage company losses included 150 horses stolen, 7 stations burned, and 16 men killed. Military attacks by a company of California cavalry from Fort Ruby under the command of Captain S.P. Smith against Indian camps resulted in the death of 24 Indians at Duck Creek on May 5,

5. Quoted in Forbes, *Nevada Indians Speak*, pp. 37-39.

6. *Ibid.*, pp. 4-5.

23 Indians near the Cleveland Ranch in Spring Valley on May 6, and 5 Indians some 20 miles north of Cherry Creek in August. These military reprisals eventually forced the Shoshones and Gosiutes to make peace.[7]

During this period of tension federal agents chose to commence negotiations with the Nevada Indians. On June 28, 1862, James D. Doty, Governor of Utah Territory, made the following report to Governor James W. Nye of Nevada Territory regarding a treaty he made with the Indians in Ruby Valley:

> I have the honor to submit this report to [you from] the Ruby Valley in accordance with your instructions under date of Dec. 16, 1861. I started overland by stage on the evening of Dec. 18 for Ruby Valley and I arrived at Smith Creek Dec. 19 at 8 P.M. This is the first station in the Shoshone Country. The Summitt of the mountains west of Smith Valley being the boundary line between the Paiutes and the Shoshonies. On Dec. 20, 1861 at 11 A.M. I arrived at Reese River country where I met the chief TooTiania, and we had a meeting with about one hundred of his band. I had a very satisfactory interview with them. The chief assured me of his friendship for our Government. Henry Butterfield understood and is the interpreter for them. The whites are very well acquainted with chief TooTiania, of the western band of the Shoshone Nation. Also chief Chain assured [me] his property belonged to the western band as did the wild game. He is not willing to give away any to white persons as he don't know how the treaty with the whites binds the whites. Deer is the means of providing food for them, making their living on meat. The tribes would be willing to go hunting any time of the year, winter or summer months in the state of Nevada. The chief accepts land, water rights, timber or would consider half interest in each to correspond with our Government. (2) The date of Dec. 20, 1861 I had a ver[y] satisfactory interview with the chief and he assured me of his friendship for our Government, and that none of his band would under any circumstances molest the stage or telegraph lines or any whites that might be visiting or want to visit or reside on his land. He seemed to regret that there were two disturbances between the whites and the Shoshones and volunteered to go with me and assist in bringing about a settlement.[8]

This treaty was unsatisfactory to the federal government since the Indians refused to surrender any territory to the United States. Thus, on October 1, 1863, a new Treaty of Ruby Valley was negotiated with the Western Shoshones. Nye and Doty recognized the Western Shoshones as a separate group of Shoshone to distinguish them from the Gosiute Shoshone to their east and the Northwestern Shoshone in present-day Utah and Idaho. This treaty, the only official treaty ever signed by Nevada Indians, was unfavorable to the natives, and there is an Indian tradition that it was forced upon them. However, the Western Shoshones did not surrender any territory to the United States but merely agreed to tolerate white settlers, allow transcontinental communication, and move to a reservation within their own territory when and if one were established.[9]

---

7. Barry A. Price, "Boom Towns and Copper Camps: An Archeological Survey of Historic Sites in White Pine County, Nevada," Prepared for State of Nevada, Division of Historic Preservation and Archeology, April 1987, p. 8.

8. Quoted in Forbes, *Nevada Indians Speak*, pp. 80-81.

9. *Ibid.*, p. 5. See Appendix O for a copy of the treaty. Later, during the 1930s, the Shoshones would protest the terms of this treaty and subsequent government action. *Ibid.*, pp. 165-66, 187-88.

On October 12, 1863, Doty and Brigadier General Patrick E. Connor negotiated a similar treaty with the Gosiutes in Utah Territory. In this treaty the Indians agreed that: (1) all hostilities against the whites were to cease; (2) several routes of travel through their country would be "forever free and unobstructed by them;" (3) military posts and station houses could be erected wherever necessary; (4) telegraph, stage lines, and railways could be constructed without molestation through any portion of the Gosiute country; (5) mines, mills, and ranches could be established and timber taken; and (6) they would "abandon the roaming life which they now lead, and become settled as herdsmen or agriculturists" whenever the President of the United States deemed it expedient to remove them to reservations. For its part, the U.S. Government, "in consequence of driving away and destruction of game along the routes traveled by white men, and by the formation of agricultural and mining settlements," agreed to pay the Gosiutes $1,000 a year for the next twenty years. Article 8 of the treaty stated that nothing in the document implied a greater "title or interest" to lands described therein, on the part of the Indians, than that which they had possessed under the laws of Mexico. The treaty was ratified in 1864 and proclaimed by President Abraham Lincoln on January 17, 1865.[10]

In spite of the strong wording of the treaties, they did not deprive the Indians of sovereignty over their land. The documents were treaties of peace and amity rather than treaties of cession. Although they gave the Indians no choice as to their ultimate removal, they did not set aside specific areas for their relocation. Furthermore, the Indians probably had little conception of what the various parts of the treaties implied, and there was undoubtedly serious question as to whether newly-created chieftains really had authority to speak for their respective tribes. In any event, the Indians continued to occupy their lands as if little had happened, and overt hostilities ceased.[11]

Despite the promises in the treaties, however, the plight of Nevada Indians continued to worsen throughout the 1860s as their lifeways and food sources were impacted by white settlement. In 1864, for instance, a government report stated:

> The Indians, in all this mountain country, cannot live any longer by hunting; the game has disappeared, the old hunting-grounds are occupied by our people to their exclusion. We must instruct them, therefore, in some other way of making a living than the chase, or else support them ourselves in idleness, or leave them to prey upon the emigration pouring into the country. For starving Indians will steal, pillage, murder, and plunge the frontier, from time to time, into all the horrors of savage warfare.[12]

Another government report issued two years later described the increasing plight of the Indians:

> South of Ruby Valley . . . the fertile lands of this degraded people are being taken from them, their grasses consumed, their groves of pine trees (pinon) destroyed, and the scanty supply of game is being killed or driven away by the invaders, whom the Indian has learned to regard as his natural enemies. . . . They live in the depths of poverty, and are emaciated from hunger. When

---

10. *Ibid.*, p. 85, and James B. Allen and Ted J. Warner, "The Gosiute Indians in Pioneer Utah," *Utah Historical Quarterly*, XXXIX (Spring 1971), 168.

11. Allen and Warner, "Gosiute Indians in Pioneer Utah," 168.

12. Quoted in *ibid.*, 170.

> they steal horses, mules, and cattle, it is to appease the cravings of appetite to keep themselves and their families from starvation.[13]

The continuing plight of the Southern Paiutes and Western Shoshones in the Great Basin was described in a report prepared in 1873 by John Wesley Powell and George W. Ingalls. After meetings with delegations of Indians throughout Nevada and Utah Territory, the two commissioners recognized that traditional Indian lifeways had been shattered by white settlement:

> They are broken into many small tribes, and their homes so interspersed among the settlements of white men, that their power is entirely broken and no fear should be entertained of a general war with them. The time has passed when it was necessary to buy peace. It only remains to decide what should be done with them for the relief of the white people from their depredations, and from the demoralizing influences accompanying the presence of savages in civilized communities, and also for the best interests of the Indians themselves. To give them a partial supply of clothing and a small amount of food annually, while they yet remain among the settlements, is to encourage them in idleness, and directly tends to establish them as a class of wandering beggars.[14]

EUROAMERICAN AND NATIVE AMERICAN RELATIONSHIPS IN SNAKE AND SPRING VALLEYS

The arrival of the first white settlers in Snake and Spring valleys during the late 1860s ushered in an entirely new way of life for the local Indians. Lands that had been used formerly for hunting and gathering purposes were appropriated and converted for agricultural and mining use. Grass seeds that had been used for food were eaten by range cattle, wild game that had served as a source of meat began to diminish in the face of hunting by settlers and miners, pinyon pine trees were cut down to construct buildings, fences, and mining structures and to serve as fuel for domestic and mining purposes, choice stream-side locations were cultivated, and springs and streams were used for stock watering places, irrigation, and sluicing operations. In turn, the Indians were often compelled to work for the ranchers and miners in order to survive. Men were employed as herders, farmhands, and laborers in mining camps such as Osceola, and women were hired to perform domestic chores. This use of Indian labor in Nevada mining camps was described by Ross Browne in his *Resources of the Pacific Slope* (1869):

> Many of the Nevada Indians residing in the vicinity of mining camps and the larger settlements are beginning to be employed by the whites. . . . The men find employment wheeling and shovelling dirt, chopping wood, carrying water, etc.; the younger and more intelligent squaws making fair wages at washing,

---

13. Quoted in Charles C. Colley, "The Struggle of Nevada Indians to Hold Their Lands, 1847-1870," *Indian Historian*, VI (Summer 1973), 8.

14. John Wesley Powell and George W. Ingalls, *On the Conditions of the Ute Indians of Utah; The Paiutes of Utah, Northern Arizona, Southern Nevada, and Southeastern California; The Western Shoshones of Idaho and Utah; and the Western Shoshones of Nevada; and Report Concerning Claims of Settlers in the Mo-a-pa Valley, Southeastern Nevada* (Washington, Government Printing Office, 1874), p. 431. During the late 1870s various scholarly studies of the Indian tribes in the Great Basin were conducted. See, for instance, Hubert Howe Bancroft, *The Native Races of the Pacific States of North America, Vol. I, Wild Tribes* (New York, D. Appleton and Company, 1875), pp. 422-42, 460-70, and Albert G. Brackett, "The Shoshones, or Snake Indians, Their Religion, Superstitions, and Manners," in *Annual Report of the Board of Regents of the Smithsonian Institution, Showing the Operations, Expenditures, and Condition of the Institution For the Year 1879* (Washington, Government Printing Office, 1880), pp. 328-33.

> while both sexes engage in packing in fuel on their backs. . . . As a prospector the Indian is very expert, the miners often securing his aid when going out on a tour of exploration; some of the most valuable mineral discoveries in southeastern Nevada having been made by Indians in the service of whites. They are also adroit sorters of ore [and] some of them are employed by the millmen for that purpose.[15]

Area newspapers described the Indians in Spring and Snake Valleys in generally condescending terms as the mining rushes spread throughout eastern Nevada. On April 13, 1869, the *White Pine Daily News* described the Indians in Snake Valley as being

> peaceable, and even friendly, and express a desire to have the Gentiles settle among them in order to keep the Mormons out. Since the discovery of the mines, Mormon farmers have begun to settle in Snake Valley, and the Indians wish to get agricultural implements from the "Mericats," so that they can till the rich soil of the valley themselves. The noble reds consist of fag-ends of the Goshute, Snake and Piute tribes, and are quite active, honest and industrious.[16]

The following month on May 8 the same newspaper published a more denigrating article on the Indians in Snake Valley:

> Ducks, curlew, sage hens and rabbits swarm in the neighborhood, and the Indians are as meek as lambs – having participated in the little difficulty with Gen. Connor and his men, they are not at all disposed to hanker after any more of the "chicken pie."[17]

Later on June 21 the newspaper commented on Indians in Spring Valley:

> Spring Valley . . . affords fine hunting, where two or three dozen teel and mallard ducks and curlew may be bagged in a few hours. The Indians sell duck eggs at fifty cents per hundred.[18]

In September 1875 tensions between whites and the Gosiute Indians increased in eastern Nevada. Two Indians were hired to show A.J. Leathers and James Tollard a mine for the sum of $50. The whites refused to pay when the mine proved of no value, and Tollard was killed by the aggrieved natives. Leathers escaped to Abner C. Cleveland's ranch in Spring Valley, where two apparently innocent Indians were murdered. A war scare was precipitated, and the Gosiutes began assembling in considerable numbers. As the panic grew, volunteer troops were raised in Eureka, Pioche, and surrounding areas and sent to Spring Valley under the command of Major John H. Dennis with orders from Governor L.R. Bradley to seize horses and necessary supplies for the troops. In the face of this force the Indians indicated they had no intention of battling with the whites but had rather assembled in the area for their traditional nut gathering activities. When it was learned that a Gosiute named To-ba or Tobe had killed Tollard, he was demanded of the tribe, delivered by the

---

15. Ross Browne, *Resources of the Pacific Slope* (New York, D. Appleton & Co., 1869), p. 189.

16. *White Pine Daily News*, April 13, 1869.

17. *White Pine Daily News*, May 8, 1869.

18. *White Pine Daily News*, June 21, 1869.

Indians to the soldiers, and quickly hung by the whites. Since no whites were brought to trial for the Cleveland Ranch murders, tensions continued to increase.[19]

In an effort to forestall further violence a council between the Gosiutes and whites of Snake Valley was held at the home of Ben Lehman near present-day Baker.[20] The following eyewitness account of the council portrays the grievances of the Indians ranging from dwindling food supplies to inadequate and undependable pay for work on Snake Valley ranches and fears of continuing white exploitation:

> At about 4 p.m. I [Levi Sheen] went to Mr. Lehman's house. Gunista and some of his Indians came with me. Some white people were present. Nearly all the inhabitants of Snake Valley have congregated at Lehman's. The whites were anxious to learn of the Indians what was the cause of the trouble. (An interesting interview then took place between the whites and Indians which was interpreted by me.) On being asked what was the cause of trouble, Gunista replied: "That he knew no other than that a bad Indian had killed a white man; did not know the cause of the killing." – The following questions were then asked and answered. Question – Why did all the Indians flee to the mountains at about the same time? Ans.– "For the past four years there have been no pine nuts in this country. This year there is a great plenty and as has been the custom in former years when the pine nuts were ripe, word was sent to all the Indians to gather in parties in the mountains and have their dance and Pine Nut Feast." Question– Why did the Indians, who had so long worked for the Ranchers, refuse to work any more, some leaving without the money due them? Ans. – "The Indians have worked very hard for the Ranchers for the past three or four years for very small wages. Some of the Ranchers paid them promptly, but others were slow, and in some cases the Indians were compelled to wait for several months for their pay, and those who went away without their money due them, did not consider that they were losing it, but would get it on their return. The Indians, heretofore, have been compelled to work for the whites in order to make a living. There being but little game and no pine nuts, this year there is some game, and an abundance of pine nuts. The Indians were tired of working and all went to the mountains to have a general good time." Ques. – Why, within the last two or three months did the Indians tell the Ranchers that the soldiers were coming to kill all the Indians, and that trouble was expected? (Here several of the Indians took part in answering the question referred to.) Ans. – "It has been talked among the Indians that if they did not go and be baptized (washed as they term it) by the Mormon people that the soldiers would kill them all." I then turned to Gunista (as per request) and asked him several questions. He (Gunista) stated, "That he had been washed and that no white man had told him that the soldiers would kill the Indians, etc., but that he had heard the other Indians say that the matter had been talked of at the washing places." On being asked if his Indians intended to kill the whites, destroy property etc., he replied; "That they did not intend to do anything wrong to the whites, but that some of the young Indians were saucy and would not obey him, and that Tobe (who killed Toland) did not belong to his band; that he was a renegade, and did not belong to any band and that Tobe had caused the whole trouble, and that he was anxious that he (Tobe) might be captured and punished." (Several of the citizens of Spring and Snake Vallies have since told

---

19. Angel, *History of Nevada*, pp. 183-84.

20. According to Read in her *White Pine Lang Syne*, p. 130, residents in the vicinity of present-day Baker had built a small fort surrounded by a moat for protection against attack during the war scare.

me that the Indians have acted and talked very strange within the past few months, and appeared to be greatly excited over the washing business, and that they (the citizens) believed, that if an Indian outbreak was imminent that the Mormon people were to blame for it).[21]

That same year a census was taken for the State of Nevada. Statistics compiled during the census indicated that 1,525 Indians lived in White Pine County. The census, which classified the entire Indian population as hunters and laborers, provided a breakdown of this total by geographical vicinity:

100 Shoshones – Ruby Valley
90 Shoshones – Diamond and Huntington Valleys
75 Shoshones – Newark Valley
50 Shoshones – Bull Creek and vicinity
250 Shoshones – Hamilton and vicinity
140 Shoshones – White River and vicinity
90 Shoshones – Robinson and vicinity
45 Shoshones – Duck Creek and vicinity
70 Shoshones – Egan and Butte Valleys
80 Shoshones – Cherry Creek and vicinity
340 Gos-Utes – Spring and Lake Valleys
150 Gos-Utes – Kern, Deep Creek, etc.
45 Gos-Utes and Shoshones – Ward and Cave Valleys[22]

Although the census did not mention Snake Valley, George M. Wheeler, while surveying the area in 1869, noted that he encountered some 200 Indians in the valley. He observed:

> Emerging from the pass, near Sacramento District, Snake Valley is entered, and here are encountered some of the Snake Indians, who are in the habit of occupying the valley in planting and harvesting season, raising scanty crops, which they *cache* for the winter use, and then retire to the mountains. Altogether, we have found some two hundred of these Indians, whose chief, Blackhawk, is a shrewd and calculating Indian, undoubtedly of a character superior to the average. These Indians had never received annuities from any source, and had always, according to their own story, been peaceable and friendly to the whites.

Wheeler commented that these Indians "professed to be Snakes or Shoshones" and wished "to receive agricultural implements."[23]

A map prepared by Wheeler's surveyors shows the location of four Indian "rancherias" in Snake and Spring valleys in 1869. "Rancherias" were small settlements of Indians on the outskirts of towns or on ranches where they were employed. Two "rancherias" in Spring Valley were along the wagon road on the west side of the Snake Range between Shoshone and the Sacramento Mining District, whose boundaries were generally north and west of Sacramento Pass. In Snake Valley one "rancheria" was located near present-day

---

21. Quoted in Forbes, *Nevada Indians Speak*, pp. 123-24.

22. *Census of the Inhabitants of the State of Nevada, 1875*, p. 822, in Appendix to Journals of Senate and Assembly, State of Nevada, Vol. 2, 8th Session.

23. *Preliminary Report Upon a Reconnaissance Through Southern and Southeastern Nevada, Made In 1869*, pp. 11, 36.

Garrison just southeast of Snake Creek, and the other was near a wagon road just south of the Absalom Lehman Ranch along Lehman Creek.[24]

By 1880 the Indian population in White Pine County had declined and the economic well-being of the Native Americans had worsened. In his *History of Nevada* in 1881 Angel observed:

> The Indians of this county are of the Shoshone and Gosh-Ute tribes – about seven Shoshones to every three of the other tribe – and belong to the Duck Valley Reservation. The Indians of White Pine County, however, have never been on a reservation, and have received very little aid from the Government since 1872. The census report places their number at 810, but it is known that many of them were not found by the census agents, and their actual number is probably not less than 1,200. The Shoshones occupy the western part of the county, and the Gosh-Utes the eastern part. Before any white settlements were commenced, the Pah-Utes subjugated the Shoshones, and regularly collected tribute from them, and only permitted them to keep a certain small number of ponies to each band, and if, at any time the number was exceeded, the extra ponies were seized by the Pah-Utes. In this manner the young Shoshones were kept dismounted and at a disadvantage. Attractive Shoshone maidens were also borne away by force to Pah-Ute lodges. The Gosh-Utes took a prominent part in the overland stage troubles of 1863, but have been perfectly quiet since the scare of 1875. A few of them are engaged in farming, and own teams, wagons and implements, but the majority strictly follow the scriptural injunction to take no thought of the morrow. Most of the heavy household drudgery of the white settlements is done by squaws, who work at cheap rates and make docile and industrious domestics.[25]

By the 1890s the remaining principal centers of Indian settlement in the vicinity of present-day Great Basin National Park were those near Garrison, Baker, and Osceola. Because of their worsening condition the remaining Indians were forced to live in small settlements on the outskirts of towns or to attach themselves to family units on area ranches, often adopting the name of the rancher of which they worked. One such settlement, which was popularly known as the Garrison Indian Camp, was located one-half mile south of Garrison. This camp consisted of some ten wickiups and several log cabins. After fire destroyed part of the camp, the Indians moved northward to Baker and settled a short distance west of the present-day Baker Indian Cemetery. By 1914 Joe and Mamie Joseph were the only Indian family left in Baker, and a typhoid outbreak soon took Joe, Mamie, and three of their children.[26]

Around the turn of the century an Indian camp was located some fifty yards from the main street of Osceola. There was considerable animosity between the white miners and the Indians as evidenced by a petition sent by the white residents of the town to the White Pine County Board of Commissioners in 1899. The petition requested that the camp be removed because it was disturbing community life. The petition noted:

---

24. Map Showing Detailed Topography of the Country Traversed by the Reconnaissance Expedition Through Southern & Southeastern Nevada in Charge of Lieut. Geo. M. Wheeler, U.S. Engineers, Assisted by Lieut. O.W. Lockwood, Corps of Engineers USA, 1869. P.W. Hamel, Chief Topographer and Draughtsman. (Copy of map on file in Special Collections Division, Marriott Library, University of Utah, Salt Lake City).

25. Angel, *History of Nevada*, p. 649.

26. Baker, "Early History of Snake Valley," n.p., and Waite, "Proposed Great Basin National Park," Part II, pp. 488-90.

> The Indians who reside in this camp frequently disturb the peace and quietness of the neighborhood by getting drunk, discharging firearms, and using vile and abusive language. The condition is such that it is unsafe for a woman to be left alone at night in her own house, and cases are not unknown where an Indian has entered a dwelling house in the night without knocking and giving warning of his coming.[27]

While documentation concerning any official action by the board could not be found, it can be assumed that the Indians in the camp drifted off in search of other employment, died as the result of various epidemics, or moved to various Indian reservations in Nevada and Utah.

During the late nineteenth and early twentieth centuries the Indian population in White Pine County declined steadily. The 1890, 1900, and 1910 census statistics listed 238, 207, and 199, respectively. The declining numbers can be attributed to disease, such as smallpox, influenza, and typhoid epidemics, and to the movement of many Indians to towns such as Ely and Las Vegas, in search of employment or reservations in Nevada and Utah.[28] The principal reservations to which White Pine County Indians moved included: (1) Shoshone-Duckwater Reservation in Nye County; (2) Paiute-Shivwits Reservation west of St. George, Utah; (3) Indian Peak Reservation in the Needle Range to the south; and (4) Goslute Reservation in Deep Creek Valley, some sixty miles north of Baker.[29]

---

27. Quoted in Read, *White Pine Lang Syne*, p. 158.

28. *Thirteenth Census of the United States Taken in the Year 1910, Statistics for Nevada*, p. 580, and Baker, "Early History of Snake Valley," n.p.

29. Omer C. Stewart, "The Western Shoshone of Nevada and the U.S. Government, 1863-1950," in *Selected Papers from the 14th Great Basin Anthropological Conference* (Socorro, New Mexico, Ballena Press, 1978), and Waite, "Proposed Great Basin National Park," Part II, pp. 488-90.

CHAPTER TEN
ADMINISTRATION OF THE SOUTHERN SNAKE RANGE BY THE U.S. FOREST SERVICE: 1909-1986

INTRODUCTION

Nevada National Forest was established by President William Howard Taft on February 10, 1909. Much of present-day Great Basin National Park was within the forest's original boundaries. The remainder of the present park, including the Lehman Caves area, was incorporated in the forest when its boundaries were enlarged and adjusted by presidential proclamation on October 28, 1912. Thus, the present park area was administered by the U.S. Forest Service until establishment of the national park on October 27, 1986.

ESTABLISHMENT OF NATIONAL FORESTS AND U.S. FOREST SERVICE

During the mid-nineteenth century a movement for the preservation of the nation's natural resources was commenced in the United States. By 1864 three scientific thinkers – Henry David Thoreau, the Massachusetts naturalist-poet-philosopher; George Perkins Marsh, a Vermont lawyer and scholar; and Frederick Law Olmstead, superintendent of the Central Park project in New York City – had articulated the need for conservation and the preservation of our country's natural resources from exploitation by business and settlement. Their writings were the foundation upon which all subsequent conservation proponents built their arguments. Olmstead, in particular, advocated the concept of great "public parks" and was responsible for launching a movement to preserve the giant sequoias in Yosemite Valley from commercial exploitation. As a result of pressure exerted on Congress a law was passed in 1864 that granted Yosemite Valley and the Mariposa Grove of Big Trees to the State of California as a state park. This was the first time that any government had set aside public lands purely for the preservation of scenic values.[1]

The "public park" concept involving preservation of important natural features and their management for the benefit of the people circulated throughout the East and Midwest from the mid-1860s onward. As a result of the Washburn-Langford-Doane expedition in 1870 and another expedition led by U.S. Geologist Ferdinand V. Hayden the following year, pressure mounted that Yellowstone should be preserved. On March 1, 1872, President Ulysses S. Grant signed the Yellowstone Park bill into law, thus establishing our first national park by virtue of the fact that it was located in Wyoming Territory and hence under the immediate administration of the federal government. A precedent had been established to reserve and withdraw areas from settlement and set them apart as public parks for the benefit and enjoyment of the people. The Yellowstone Park Act empowered the Secretary of the Interior to protect fish and game from wanton destruction and provide for the preservation and retention in their natural condition of timber, mineral deposits, natural curiosities, and scenic wonders within the park.[2]

Meanwhile, wholesale devastation of timber reserves in the West continued. In 1876 the position of forestry agent in the U.S. Department of Agriculture was established to study the twin problems of timber consumption and preservation of forest lands. Other federal

---

1. U.S. Department of the Interior, National Park Service, National Survey of Historic Sites and Buildings, *Theme XIX, Conservation of Natural Resources*, 1963, pp. 2-19.

2. *Ibid.*, pp. 22-23, and Horace M. Albright and Frank J. Taylor, *"Oh, Ranger!": A Book About the National Parks* (Reprint ed., Golden, Colorado, Outbooks, 1980), p. 121.

efforts that contributed toward awakening public interest in the diversified natural resources of the West were Hayden's Geological and Geographical Surveys of the Territories of the United States, John Wesley Powell's United States Geographical and Geological Survey of the Rocky Mountain Region, and Lieutenant George M. Wheeler's Geographical Surveys West of the One Hundredth Meridian. In 1879 these three groups were incorporated into the United States Geological Survey and placed under the Department of the Interior with authorization to conduct all scientific surveys performed by the federal government.[3]

During the 1870s and 1880s a group of intellectuals, including scientists, naturalists, landscape architects, foresters, geologists, and editors of national periodicals, refined the basic concepts of conservation. Through their writings and leadership they made progress in reversing the traditional American attitude toward the utilization of natural resources. One of the most articulate and widely read spokesman for conservation was John Muir, a well-educated Scotsman who campaigned for the preservation of the wilderness and federal control of the forests in the West. His chief concerns were the waste and destruction of forests by lumbermen, cattle grazing, and sheepherding.[4]

As a result of Muir's campaigning, three national parks – Yosemite, Sequoia, and General Grant – were established to preserve the Sierra forests from timbering excesses and overgrazing. The establishing legislation for these parks passed Congress with little debate, primarily as a result of the fact that "scenic nationalism" and "monumentalism" were not in conflict with "materialism" in these areas by 1890.[5]

During the 1870s and 1880s conservationists in the United States focused considerable energy on a movement to repeal the Timber Culture Act of 1873 and the Timber Cutting Act of 1878. At the forefront of this movement were conservationists interested in forestry such as Charles S. Sargent, John Muir, and Robert V. Johnson, aided by the General Land Office of the U.S. Department of the Interior and foresters in the U.S. Department of Agriculture. Considerable fraud was associated with these laws, and as a result much valuable timber land was lost as it fell into the hands of large corporations and timber speculators. The two acts were ostensibly intended to provide for forest conservation. The Timber Culture Act of 1873 authorized any person who kept forty acres of timber land in good condition to acquire title to 160 acres. The minimum tree-growing requirement was reduced to ten acres in 1878. The Timber Cutting Act of 1878, on the other hand, allowed bona fide settlers and miners to cut timber on the public domain free of charge for their own use.[6]

In 1890 a committee of the American Association for the Advancement of Science, with Thomas C. Mendenhall, Superintendent of the U.S. Coast and Geodetic Survey, as chairman, presented President Benjamin Harrison with a petition recommending that a commission be established to "investigate the necessity of preserving certain parts of the present public forest as requisite for the maintenance of favorable water conditions." The petition further urged that "pending such investigation all timber lands of the United States be withdrawn from sale and provision be made to protect the said lands from theft and

---

3. *Theme XIX, Conservation of Natural Resources*, pp. 29, 35-37.

4. *Ibid.*, pp. 9, 32-34.

5. Alfred Runte, *National Parks: The American Experience* (Lincoln, University of Nebraska Press, 1979), p. 65.

6. Richard B. Morris, ed., *Encyclopedia of American History: Bicentennial Edition* (New York, Harper & Row, Publishers, 1976), p. 637, and *Theme XIX, Conservation of Natural Resources*, pp. 73-74.

ravages by fire, and to supply in a rational manner the local needs of wood and lumber until a permanent system of forest administration be had."[7]

President Harrison and Secretary of the Interior John W. Noble endorsed the proposals. Provisions of the bill to accomplish these ends were drafted by Edward A. Bowers, a special agent and inspector in the General Land Office, with the advice of John Muir and Robert V. Johnson. Bowers' bill was attached as a "rider" to the Sundry Civil Appropriations Bill and passed by Congress without debate.[8]

The Forest Reserve Act (26 Stat. 1095), signed into law by President Harrison on March 3, 1891, repealed the Timber Culture Act of 1873 and the Timber Cutting Act of 1878. Section 24 further provided:

> That the President of the United States may, from time to time, set apart and reserve, in any state or territory having public land bearing forests, in any part of the public lands, wholly or in part covered with timber or undergrowth, whether of commercial value or not, as public reservations, and the President shall, by public proclamation, declare the establishment of such reservations, and the limits thereof.

The forest reservations were to be administered by the Department of the Interior.[9]

While the law did not define the objectives for setting aside the forest reservations the ostensible purposes, according to the House Committee on Public Lands, were the protection of "forest growth against destruction by fire and ax and preservation of forest conditions upon which water conditions and water flow" were dependent. The new policy was based on the perception "that a forest-cover on slopes and mountains must be maintained to regulate the flow of streams, to prevent erosion, and thereby to maintain favorable conditions in the plains below." The policy of reserving forest land was thus "confined mainly to those localities in which agriculturists" were "dependent upon irrigation." The overriding goal of the reserve policy was "to maintain favorable forest conditions, without, however, excluding the use of these reservations for other purposes."[10]

During the next decade the Department of the Interior refined its policies concerning the objectives and regulations governing the forest reserves. Administration of the reserves was assigned to the Forestry Division of the General Land Office. Regulations for managing the reserves were adopted on June 30, 1897, and amended on March 21, 1898. By 1902 the department had developed the objectives for national forest reserves into a formal policy statement:

---

7. Quoted in Charles R. Van Hise and Loomis Havenmeyer, eds., *Conservation of Our Natural Resources* (New York, The Macmillan Company, 1933), p. 242, and Benjamin H. Hibbard, *A History of Public Land Policies* (New York, The Macmillan Company, 1924), p. 530.

8. Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920* (Cambridge, Harvard University Press, 1959), p. 36.

9. 26 Stat. 1095.

10. *Annual Report of the Secretary of the Interior, 1895*, I, CIV-CV, and American Forestry Association, "The Forest Reservation Policy," ca. 1897.

The object of setting land aside for forest reserves is

1. To protect a growth of timber of land which is not fit to grow other crops and under conditions where no such protection is assured or can be supplied by private persons or local authorities.

2. To keep a growth of vegetation, especially of timber on mountain lands which would otherwise wash and gully.

Forest reserves have been and are created from lands (nearly all mountain lands) unfit for agriculture for reasons of altitude and consequent climate usually reinforced by poverty or insufficiency of soil. These lands generally bear a stand of timber or indicate that they have borne such and are likely to be restocked with forests if protected. Where these mountain forests have not been reserved and have passed into private ownership their history has generally been that of the Northern pineries and other forest areas. They are culled over for whatever will pay the expense of exploitation, the cutting is careless and wasteful, the profits of the timberman small and to the district much smaller. Since this work of denudation is a temporary matter it does little for the permanent improvement of the locality, but leaves behind it the characteristic ruins of abandoned sawmills and the devastated, fire-scorched mountain lands robbed of their forest and fertility alike and doomed for years, in many cases for centuries, to remain as unsightly, barren wastes where the much-needed waters gather unhindered to rush from the mountains and be wasted. To avoid this permanent injury to districts where every drop of water is precious, and where the protective function of the mountain forests, therefore, is of the greatest importance, is the first object of the creation of forest reserves. To husband an immense wealth of timber, to regulate its use, to utilize only the growth of these mountain forests and thereby insure a continued supply of one of the most important materials, is the second object of the reserve policy.[11]

Thus, the Forest Reserve Act and the implementation of its provisions became the cornerstones of early national conservation policy. The act would later be characterized as "the most important legislation in the history of Forestry in America" by Gifford Pinchot, a long-time progressive and conservationist who became the first Chief Forester of the U.S. Forest Service.[12] Benjamin H. Hibbard, a noted public lands historian, has commented on the effect of the act in establishing a precedent that all of the public domain was not to be disposed of by private interests:

> Without question the act permitting the withdrawal of public [forest] land from private entry was the most signal act yet performed by Congress in the direction of a national land policy.[13]

In 1905 administration of the national forest reserves was transferred from the General Land Office of the Department of the Interior to the newly-established U.S. Forest Service in the Department of Agriculture. Under the energetic leadership of Chief Forester Gifford Pinchot the Forest Service became active in the crusade to conserve our nation's natural resources. As part of its conservation ethic, the new bureau favored a policy of multiple-

---

11. *Annual Report of the Secretary of the Interior, 1902*, I, 19-20.

12. Gifford Pinchot, *Breaking New Ground* (New York, Harcourt, Brace & Co., 1947), p. 85.

13. Hibbard, *History of Public Land Policies*, p. 532.

purpose resource utilization under which the land and its resources would serve a variety of regulated economic functions.[14]

The earliest regulations and instructions for the administration of the national forest reserves under the new bureau were based upon general policies laid down in a letter Pinchot wrote for the signature of Secretary of Agriculture James Wilson outlining his duties as Chief Forester. The policies supported resource use within a utilitarian conservation framework rather than preservation of the forest as game reserves or public playgrounds. The letter, dated February 1, 1905, read in part:

> In the administration of the forest reserves it must be clearly borne in mind that all land is to be devoted to its most productive use for the permanent good of the whole people, and not for the temporary benefit of individuals or companies. All the resources of forest reserves are for use, and this use must be brought about in a thoroughly prompt and business-like manner, under such restrictions only as will insure the permanence of these resources. The vital importance of forest reserves to the great industries of the Western States will be largely increased in the near future by the continued steady advance in settlement and development. The permanence of the resources of the reserves is therefore indispensable to continued prosperity, and the policy of this Department for their protection and use will invariably be guided by this fact, always bearing in mind that the conservative use of these resources in no way conflicts with their permanent value.
>
> You will see to it that the water, wood, and forage of the reserves are conserved and wisely used for the benefit of the home builder first of all, upon whom depends the best permanent use of lands and resources alike. The continued prosperity of the agricultural, lumbering, mining and livestock interests is directly dependent upon a permanent and accessible supply of water, wood, and forage, as well as upon the present and future use of these resources under businesslike regulations, enforced with promptness, effectiveness, and common sense. In the management of each reserve local questions will be decided upon local grounds; the dominant industry will be considered first, but with as little restriction to minor industries as may be possible; sudden changes in industrial conditions will be avoided by gradual adjustment after due notice, and where conflicting interests must be reconciled the question will always be decided from the standpoint of the greatest good of the greatest number in the long run.[15]

On June 14, 1905, Secretary Wilson approved Pinchot's manuscript for a set of regulations and instructions to govern the national forest reserves. The manuscript was published in a small pocket volume entitled *The Use of the National Forest Reserves* and placed in the hands of all field men on July 1 when its contents went into effect. The volume, soon renamed the *Use Book*, stated succinctly the spirit and purpose of the national forest reserves:

---

14. Richard Polenberg, "The Great Conservation Contest," *Forest History*, January 1967, 13-14. For further data on the history of the U.S. Forest Service and the development of its policies, see Samuel Trask Dana and Sally K. Fairfax, *Forest and Range Policy: Its Development in the United States* (2d ed., New York, McGraw-Hill Book Company, 1980); Glen O. Robinson, *The Forest Service: A Study in Public Land Management* (Baltimore, Johns Hopkins University Press, 1975); and Harold K. Steen, *The U.S. Forest Service: A History* (Seattle, University of Washington Press, 1976).

15. Preliminary Draft, Chapter VIII – History of Forest Service Policy and Past and Present Administrative Procedure on National Forest Range Lands in Northeastern Nevada," [ca. 1937], Historical Files, USFS, Elko.

> The timber, water, pasture, mineral, and other resources of the forest reserves are for the use of the people. They may be obtained under reasonable conditions, without delay. Legitimate improvements and business enterprises will be encouraged.
>
> Forest reserves are open to all persons for all purposes.
>
> Persons who wish to make any use of the resources of a forest reserve for which a permit is required should consult the nearest forest officer. . . .

The *Use Book* went on to state that forest reserves

> are for the purpose of preserving a perpetual supply of timber for home industries, preventing destruction of the forest cover which regulates the flow of streams, and protecting local residents from unfair competition in the use of forest and range. They are patrolled and protected at Government expense, for the benefit of the community and the home.
>
> The administration of forest reserves is not for the benefit of the Government, but of the people. The revenue derived from them goes, not into the general fund of the United States, but toward maintaining upon the reserves a force of men organized to serve the public interests. This force has three chief duties: To protect the reserves against fire, to assist the people in their use, and to see that they are properly used.[16]

The Forest Service centralized responsibility for administration of the national forests (national forest reserves were redesignated national forests in 1907) in Washington, D.C., until 1908. In that year, the Forest Service created six administrative regions (then called districts), each supervised by a regional (district) forester to whom the Washington Office delegated substantial authority. Regional foresters were authorized to exercise administrative discretion over a wide range of functions. Over time, their authority was extended, and thus they came to amass considerable autonomy in making decisions for the forests under their administration.

The 1908 reorganization created the Intermountain Region (District) or Region 4, with headquarters at Ogden, Utah. This region covered national forest lands in Idaho south of the Salmon River, Wyoming west of the Continental Divide, Utah, Nevada, a small portion of western Colorado, and Arizona north of the Grand Canyon. Although the configuration of the region has changed somewhat in the period since its creation, the general outlines have remained to date.[17]

U.S. FOREST SERVICE SURVEYS IN CENTRAL EASTERN NEVADA AND ESTABLISHMENT OF NEVADA NATIONAL FOREST

After the establishment of the U.S. Forest Service in 1905 Pinchot became interested in the forest resources in central eastern Nevada as well as other parts of the West. Protection of the remaining timber supply from fire and private exploitation, conservation of the

---

16. Quoted in Pinchot, *Breaking New Ground*, pp. 264-67.

17. U.S. Department of Agriculture, Forest Service, *The Rise of Multiple-Use Management in the Intermountain West: A History of Region 4 of the Forest Service*, by Thomas G. Alexander, May 1987, p. 1. This study is the most definitive work of its kind on the history of the U.S. Forest Service's Region 4.

watersheds for agricultural irrigation, and efficient, regulated administration of grazing for range replenishment and preservation were key elements of Pinchot's interest in the area.[18]

During 1906 the Forest Service conducted an examination of central eastern Nevada in order to develop proposals for new national forest reserves. The surveys, under the direction of Forest Expert L. Von Wernstedt, covered "a strip of country 50 to 60 miles wide along the Utah State line in eastern Nevada, between the Lincoln County line and the Central Pacific R.R." As a result of these surveys, Wernstedt recommended that four national forests be established: Ely, Steptoe, Osceola, and Snake.

The surveys conducted by Wernstedt for the proposed Snake and Osceola national forests are pertinent to this study because the area they encompassed included portions of present-day Great Basin National Park. In his report Wernstedt made some general observations about the area comprising these two proposed national forests, followed by specific discussions of forestry, lumbering, fire, settlements, and ranching issues. Regarding the geographical features of the Snake Range, he noted:

> The Snake Range is the most conspicuous range of mountains between the Wasatch Mountains and the Sierras, its highest peak Wheeler Peak, or Jeff Davis, attaining an elevation variously given as 12,000 to 13,000 feet or some 7,000 feet above the valley. It extends from the Lincoln County line for about 60 miles north and is divided by the Osceola pass in two mountain ranges, the northerly one called Mt. Moraja with an elevation of about 11,000 feet. . . . The Snake Range proper is very rough while that part of Mt. Moraja that lies north of the main peak is lower and with shallower and longer features of relief. The mountain is a quartzite formation resting upon a granite bed and overlaid by limestone but this order, on account of crossfolding, is sometimes reversed. The west side of the main Snake range is steeper than the east side and that part of the mountains that face Spring Valley east of Shoshone is exceedingly steep and full of precipitous ledges. . . . Several small streams head on both sides of the mountain, most of them on the east side. These are all used for irrigation, or for mining purposes at the Osceola placer mines. There are about a dozen small streams varying in size from about 1-1/2 second feet to 5 second feet. The main flow is from April to June. After July there is a falling off on the flow but most of the larger streams are live all the year.

Wernstedt stated that the Snake Range was "probably better timbered than any other mountains in Nevada with the exception of the Charleston Mountains and possibly the Nevada portion of the Sierras." He elaborated further:

> The timbered area however does not exceed 75,000 acres and the timber is quite inaccessible, the bulk being located at high elevations on the east side of the summit. The forest begins at about 7,800 feet and the timber line is reached at about 10,500 feet. The forest consists of yellow pine, balsam, Douglas fir, hickory pine, Rocky Mountain white pine, and spruce; balsam and yellow pine occupies the low elevations, spruce the higher country and preferably north exposures. The hickory, pine, and white pine range from near the lower limit to the timber line and occupy preferably east and south exposures. The bulk of the forest is spruce; the amount of yellow pine is small. Douglas fir is scattering.

---

18. Eunice Miller, "The Timber Resources of Nevada" (Unpublished M.A. thesis, University of Nevada, Reno, 1924), pp. 67-68.

Range of yellow pine	7,900 – 8,500, best 8,000
" " balsam	7,300 – 9,500, most at 8,000, most common tree below 8,600
" " Douglas fir	8,000 – 9,000
" " hickory pine	8,300 – 10,500, best 9,000
" " spruce	8,500 – 10,000, best 9,000
" " white pine	8,300 – 10,500, best 9,000

> Yellow pine, diameter 9 inches to 30 inches, generally less than 24 inches, height 70 feet, timber in bunches, where good 100 to 120 trees per acre over small areas of a few acres only. Spruce also in bodies sometimes very dense, 100 to 150 trees per acre, diameter 8 inches to 30 inches, generally 14 inches, height 50 to 90 feet, perfectly straight and clean but often with spiral grain. Douglas fir, 24 inches to 36 inches, height 70 to 100 feet, young growth, much at the lower elevations, straight development. Hickory pine and white pine, 10 to 20 inches diameter, generally scrubby, hickory pine better. Balsam some 36 inches generally 15 inches, and 30 to 40 feet tall. Approaching the tree limit the trees all become small and stunted. Probably spruce occupies 50 percent of the timbered area, balsam 25 per cent, hickory pine and white pine 15 per cent, and yellow pine 5 per cent and only in certain localities.

According to Wernstedt, lumbering had been conducted in the Snake Mountains since the 1860s. The timber had been used primarily "for building up the various mining camps, Ward, Ely, and Osceola." In earlier days sawmills had been operating "on Williams Creek on the west side, and on the Strawberry, Snake, and Lexington creeks on the east side of the Snake range proper." On Mount Moriah there had been mills "in two of the canyons on the south and east side, Williams Canyon on the south and Henry Canyon." At the present time the three sawmills on Strawberry, Snake, and Lexington creeks were operating. The Mount Moriah mills were closed, because the timber on the mountain was less accessible. At the time of examination the three mills were cutting lumber for the mines at Ely and for a new mine in the Mount Moriah area.

Wernstedt estimated that from 10,000,000 to 15,000,000 board feet of lumber had been cut from the Snake Range. All of the mills were small, "sawing 6,000 to 10,000 feet a day when running." The lumber cut had been "mainly yellow pine, Douglas fir, and some balsam." The cuttings had been confined to the lower elevations, and no spruce had been touched. No "bodies of yellow pine of any importance" existed "outside of the canyons where the mills" were located, and most of it had been cut. Thus, the amount of yellow pine left was small, "probably for the whole range not over 4 million feet besides young growth and trees less than six inches in diameter."

The amount of timber on the Snake Range, according to Wernstedt, could not "be given except very roughly." He stated:

> About 65,000 acres are timbered, half of it being dense timber. Counting in everything, saw timber and prop timber, the heavy areas as mapped at least average 2,000 feet per acre while they sometimes run 8,000 feet per acre. This would indicate that there is, at the least calculation, 75 million feet on the Snake range and 10 million on Mt. Moraja. How much of this timber that is commercial will depend not only on the location but, in the main, on the need for lumber in the locality.

Several small areas of timber had been burned by forest fires, "principally in the thick spruce."

The agricultural, ranching, and mining interests in the area were, according to Wernstedt, relatively small-scale. He observed:

> Osceola is a small, mining town, but it has had its period and only a few men are now kept working at its placer mines. Lively prospecting is going on all over. Two prospects had recently been bonded for $25,000 and $50,000 respectively at the time of the examination and about 60,000 feet of lumber had been contracted for. There are 25 ranches, most of them in Snake Valley, that depend on the water from the Snake range. These ranches have an approximate area of 7,000 to 8,000 acres of which 2,500 acres are in grain or alfalfa, and the balance is irrigated pasture. Potatoes, wheat, oats, alfalfa, barley, wild hay are raised, and in Snake Valley, fruit, peaches, pears, prunes, plums, grapes, etc. Improved farm land is valued at $25 an acre.
>
> The number of cattle and sheep owned by these ranches and depending on the Snake range is approximately 22,000 sheep owned by 8 men, and 3,300 cattle; most of the sheep are run on Mt. Moraja. It does not seem probable that farming will ever be carried on to a much greater extent in the future than at the present as all depend on the limited water supply which could not be materially increased or the flow greatly retarded, and the growing season is short for possible dry farming development. There is some complaint about the effect of the lumbering operations and the sheep in relation to the stream flow, and the range here as elsewhere is over-stocked. It is not believed that the lumbering up to the present has injured the supply but evidently the forests on the Snake range are acting effectively as a protection to the water supply and if cut a great change would be noticeable. The creeks have a greater volume before they emerge from the mountains than at the place where they are used. Fluming would increase the acreage some. There are pipe lines conveying water from the canyon immediately north of Wheeler Peak to Osceola on the east side and also pipe lines from the canyon five miles north of Shoshone to Osceola on the west side, both for the Osceola placers. There are no good reservoir sites in these mountains and a great deal of water in the early spring goes to waste. The cattle generally work up in the mountains in the latter part of June and the poorest of the cattle are fed in the winter; others stay on the snow on the foothills. The south side of the Snake range is not used much on account of scarcity of water and the west side is generally too steep. Above the timber line there is a great deal of barren country and nowhere was there very much grass observed. Above 9,500 feet there are thickets of manzanita. The flat top of Mt. Moraja is said to be excellent sheep range.

Wernstedt noted that most of the settlers "would favor the inclusion of these mountains" in a national forest "with a view to preserving the timber and as a protection to their water." Sheepmen, however, were opposed to the establishment of a national forest, because "a cutting down on the sheep" would "be needed to improve the range."

In conclusion, Wernstedt proposed that the Snake and Osceola, as well as the Ely and Steptoe, national forests be established. The Snake and Osceola national forests were to comprise 132,000 and 57,700 acres, respectively. His rationale for these recommendations read:

> There is no strong argument or any immediate urgent need of establishing any of these Forests at this time. As stated before, it is possible but at the same time it is a matter of uncertainty whether the Snake Forest will ever be cut off to such an extent as to seriously injure the water supply and the interests

affected are, furthermore, small, and there may be very little Reserve business, all depending on mining development. Very likely they will be cut as they have been in the past, and sufficiently to render it increasingly expensive to the settlers to get lumber. On the other hand, control of the timber would insure a permanent supply. The Forest could be improved and extended and the range, as well as the water supply, could be improved and range developed which would be a good thing in itself. Government control would be of a decided benefit to the country but as the agricultural interests are comparatively small it is doubtful if the benefits would justify or make up for the cost to the Government, particularly if this Forest is considered by itself as one separate proposition.

For the administration of these Forests there would be needed two men, one Acting Supervisor, preferably a Ranger or a man that could be occupied with planting work when not otherwise busy, and one Ranger to look after the stock generally. Headquarters should be in Ely for both. This force, with some Reserve authorization, would bring the cost of running the Forests up to $4,000 a year while the returns would probably be less than $2,000 which would be drawn mainly from the stock and the sheep industries of the country. Not considering the protection of the Duck Creek water, it must be held doubtful if the benefits derived in the country would balance the cost to the Government which is the most serious objection against the establishment of these Forests. Considering all these Forests as one proposition these arguments lose some of their force however. As a matter of general principles it seems that the natural productiveness of this country ought to be maintained and its resources of wood and grass be improved where there is any opportunity to do so rather than be allowed to depreciate in these respects. It seems that a supply of timber like that in the Snake range and in the Shell Creek range, the only body of timber in the country within hundreds of miles, ought to be protected. It is recommended that these Forests be created at this time if future control of the areas is not assured, in which case the lands should be only withdrawn and developments watched until the need becomes more apparent. If created, special attention should be paid to improvement work in the Forest by planting or otherwise on the head of Duck Creek and on suitable areas of the lower Snake range.

Dead wood should be disposed of. There is not likely to be any demand for it until other areas have been cut off. Sheep should be reduced gradually particularly on the Shell Creek Mountains until a decided improvement of the ranges has been noticed. They should be kept out of areas at the head of creeks or springs where there are justified complaints and from other waters as the need becomes apparent. All cattle regularly occupying the ranges should be admitted. Number and seasons of sheep and stock will have to be determined upon at the time of the organization of the Forests.[19]

In accordance with the recommendations of Wernstedt the Acting Secretary of the Interior on September 1, 1906, "temporarily withdrew from all disposals except under the mineral laws, certain vacant unappropriated public lands for the proposed Osceola Forest Reserve, Nevada." The proposed forest reserve, in essence a consolidation of Wernstedt's Snake and Osceola reserve proposals, was to comprise some 270,720 acres in three divisions –

19. "Report on the Proposed Ely, Steptoe, Osceola, and Snake National Forests, Nevada," by L. Von Wernstedt, Forest Expert, Forest Service, 1906," RG 49, National Archives and Records Administration, Washington, D.C.

west, east, and south. Much of present-day Great Basin National Park was incorporated in the proposed southern division.[20]

The proposed Osceola Forest Reserve was never established. On February 10, 1909, however, President Theodore Roosevelt issued Proclamation No. 839 (35 Stat. 2220) creating Nevada National Forest, a reserve covering much of the same area as that of the earlier Osceola proposal. The proclamation read in part:

> there are hereby reserved from settlement or entry and set apart as a public reservation, for the use and benefit of the people, all the tracts of land, in the State of Nevada, shown as the Nevada National Forest on the two parts of the diagram forming a part hereof.
>
> The withdrawal made by this proclamation shall, as to all lands which are at this date legally appropriated under the public land laws or reserved for any public purpose, be subject to, and shall not interfere with or defeat legal rights under such appropriation, nor prevent the use for such public purpose of lands so reserved, so long as such appropriation is legally maintained, or such reservation remains in force.[21]

In 1911 the Baker Administrative Site was established in the town of Baker, Nevada, by President William Howard Taft. On the recommendation of the Secretary of Agriculture it was ordered "that the E. 1/2 of the N.W. 1/4 of Section 9, T. 13 N., R. 70 E., M.D.M., Nevada, containing 80 acres, be temporarily withdrawn from settlement, location, scale or entry" and "be reserved for use by the Forest Service as a ranger station in the administration of the [Nevada] National Forest."[22]

BOUNDARY ADJUSTMENTS TO NEVADA NATIONAL FOREST: 1912-1919

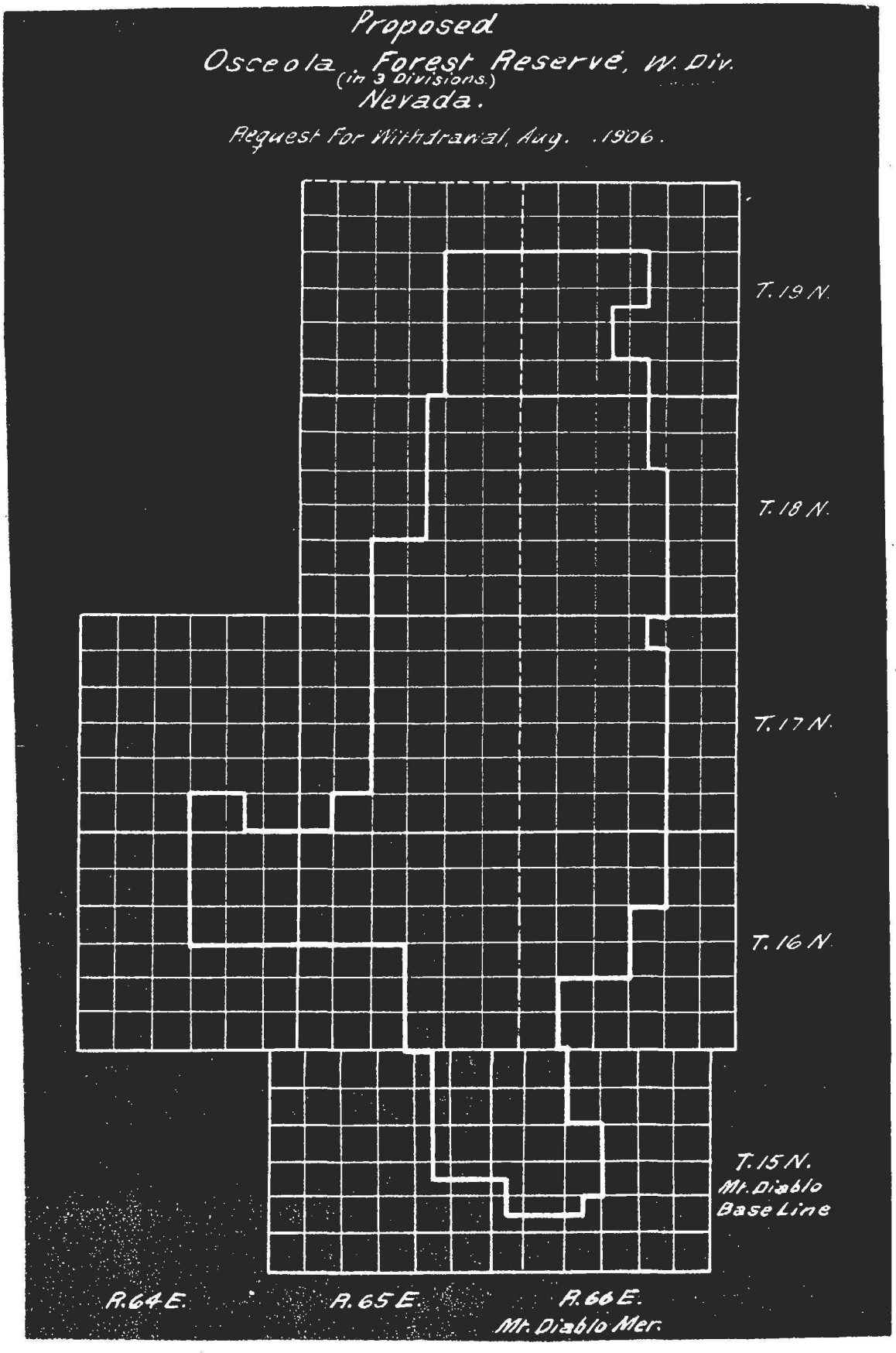
During the early months of 1911 Forest Service personnel conducted additional surveys of Nevada National Forest for the purpose of making boundary adjustments. One of the surveys is pertinent to this study since it related to the Snake Mountains and areas within present-day Great Basin National Park. On March 16, 1911, Forest Supervisor Royal F. Mathias approved "A Report For Additions to and Eliminations From the Snake Division and the North End of the Schell Creek Div. of the Nevada National Forest." The report, which had been prepared by Deputy Forest Supervisor Rudolph Dieffenbach, recommended the addition of 134,080 acres to the Snake Division and 5,160 acres to the north end of the Schell Creek Division and the elimination of 7,200 acres from the former and 4,480 acres from the latter. Concerning the topography of the proposed additions and eliminations on the Snake Division, Dieffenbach noted:

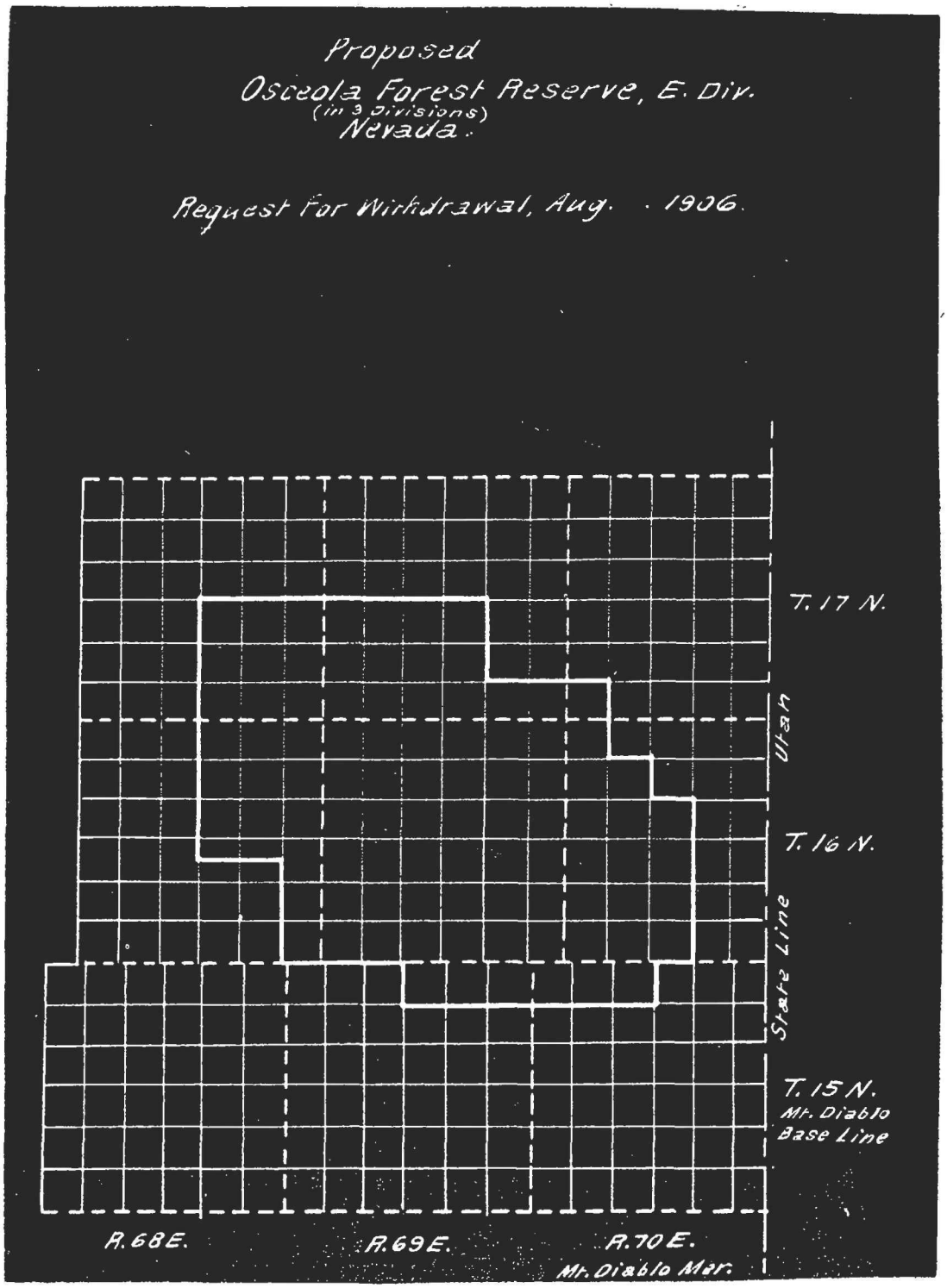
---

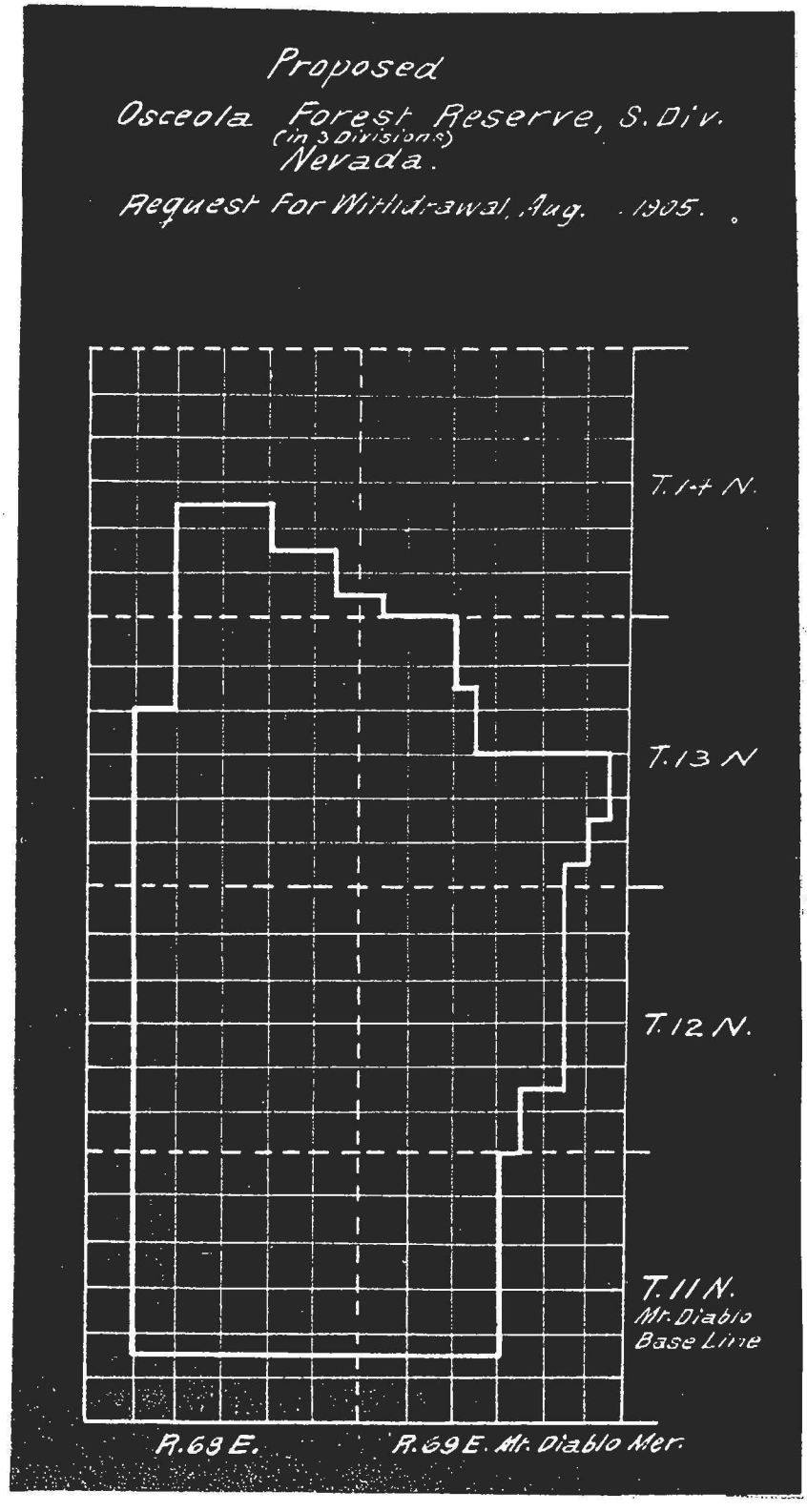
20. Chief, Division "R," General Land Office to Chief, Division "C," General Land Office, September 7, 1906, and Chief of Drafting Division, General Land Office to Chief of Division "R," General Land Office, September 10, 1906, RG 49, National Archives and Records Administration, Washington, D.C., and Acting Secretary, Department of the Interior to Commissioner of the General Land Office, September 1, 1906, Historical Files, U.S. Forest Service, Intermountain Regional Office, Ogden, Utah. See the following pages for copies of maps of each of the three divisions of the proposed Osceola Forest Reserve.

21. Nevada National Forest, Nevada, By the President of the United States of America, A Proclamation, February 10, 1909 (Proclamation No. 839 – 35 Stat. 2220). See Appendix P for a copy of the full proclamation and accompanying maps.

22. Secretary of Agriculture to Secretary of the Interior, April 28, 1911; and Acting Secretary of the Interior to the President, May 16, 1911, RG 49, National Archives and Records Administration, Washington, D.C.


Proposed
Osceola Forest Reserve, W. Div.
(in 3 Divisions.)
Nevada.
Request for Withdrawal, Aug. 1906.
T. 19 N.
T. 18 N.
T. 17 N.
T. 16 N.
T. 15 N.
Mt. Diablo
Base Line
R. 64 E.
R. 65 E.
R. 66 E.
Mt. Diablo Mer.


Proposed
Osceola Forest Reserve, E. Div.
(in 3 Divisions)
Nevada.
Request For Withdrawal, Aug. · 1906.
T. 17 N.
Utah
T. 16 N.
State Line
T. 15 N.
Mt. Diablo
Base Line
R. 68 E.
R. 69 E.
R. 70 E.
Mt. Diablo Mer.


Proposed
Osceola Forest Reserve, S. Div.
(in 3 Divisions)
Nevada.
Request For Withdrawal, Aug. 1905.
T. 14 N.
T. 13 N.
T. 12 N.
T. 11 N.
Mt. Diablo
Base Line
R. 69 E.
R. 69 E. Mt. Diablo Mer.

The topography of the land recommended for addition to the Snake Division, comprising the Snake and Mount Moraja ranges, is a rough limestone formation, which rises rather abruptly from the valley. The present line crosses country of this nature, not only excluding land carrying four or more cords to the acre, but making the administration most difficult.

The areas recommended for elimination on the Schell Creek and the Snake Division are open bench lands, covered only with sage brush and grass. These areas should, by all means, be excluded as they cannot be considered forest land in any sense of the word.

You will observe that the boundary as recommended in T. 14 N., R. 69 E., on the east side of the Snake range conforms to a previous recommendation for a change of this line. Your attention is also called to the proposed addition of Section 20, of the same township, part of which is sage and grass land, which is desirable for an administrative site. Section 13 of T. 13 N., R. 69 E. is also desired for the same purpose, and the line cannot be recommended to exclude any part without throwing out some of the land desired.

The tier of sections recommended for addition on the north end of the Snake range in T. 14 N., Ranges 68 and 69 East, contains a few patches of merchantable timber – the balance being Juniper and Single Leaf Pine running four or more cords per acre.

It is presumed by the examiner that this land was purposely excluded by the previous examiners fearing that it would include mining claims in the vicinity of Osceola, but this is not the case.

Dieffenbach elaborated on three points to justify his recommendations for additions to the forest divisions. These were the importance of forest lands as protective cover for watersheds and the need to acquire lands for more efficient grazing administration and provide more extensive fire protection. He stated:

Every spring and every stream of running water in the proposed additions are used, either for irrigation of ranches, or for use in the mining camps and mills. It would be very conservative to place the acreage of ranches at present deriving their water from the Snake and Moraja ranges at 12,000 acres; while with further development of irrigation schemes, and use of sub-irrigated lands, etc., there could probably be at least 30,000 acres more put under cultivation. There are 3 mills and 4 mining camps dependent for their water from these sources. One of the mills has been forced to put in a concrete dam to catch the sub-surface flow in a canyon, showing the value of water here. As will be noted, later, the chances for further development of mining and milling are very bright. The value of the forests as protection to water shed is undoubted, as in all this district, the snow and summer storms are liable to go off in torrents, and the value of forested watershed in such case has been fully demonstrated. As water is so valuable here, and as all the principal creeks of this district are included in the parts recommended for addition, the value of these additions can be readily appreciated.

To reach the higher grazing lands that are already in the Forest, it is of course necessary to cross the country recommended for addition which provides forage for grazing animals on the wooded areas. There are no large areas covered only with grass. The proper protection of the water that rises inside the present

boundary and flows through the mountainous wooded country that is here recommended for addition should be a very important consideration in approving the changes. As the boundary now stands on the Snake division, the control of the range will never meet with entire success.

The fact that the timbered areas on the Snake Division have all been burned over, certainly justifies the inclusion of these areas, so that in the future they will be protected.

When lumber sells in the millyard at $30.00 per thousand feet, as it does on the Snake Division, and the supply does not meet the demand, its conservation and protection on the public lands is a duty that should be performed and can only be done effectually by including the areas that are here recommended within the Nevada National Forest. This protection can be accomplished without increasing the present force of the Forest.

In conclusion, Dieffenbach noted:

The lands recommended for elimination should be eliminated because they are strictly grazing in character and cannot be considered forest land in any sense of the word.

The land recommended for addition should be included to protect the water sheds outside the present Forest boundary from over grazing; and especially that the administration of the areas now within the boundaries may be more thorough and efficient. The additions recommended, with the exception of a few small tracts of grass land, either bear four or more cords of Juniper and Single Leaf Pine per acre, or large bodies of commercial timber. The latter should be protected from fire, grazing, and other damage so that the local market can be assured of a constant supply, commensurate with the capacity of the timber land.

The present value of the proposed addition is greater for its forest cover and forest products than for any other purpose.[23]

The boundary adjustments recommended by Dieffenbach and other examiners for other areas of Nevada National Forest were consolidated into one proposal by Forest Examiner Robert R. Reynolds on June 20, 1911. In his report on June 20, 1911, he found

that the Moraja and Snake divisions of the Forest are excellent nuclei of Forest divisions, owing to the several useful streams which flow from them and the existence of sawtimber at their heads. The additions which have been proposed by previous examiners consist merely in bringing the present boundaries down to the foot of the steep mountain slopes for the purpose of easy administration. While some of the lands thus included are not intrinsically valuable for forest

23. "A Report For Additions to and Eliminations From the Snake Division and the North End of the Schell Creek Div. of the Nevada National Forest," by Rudolph Dieffenbach, Examiner, Deputy Forest Supervisor, March 16, 1911, L-Boundaries, Nevada, 1911, Record Group 95, Records of the U.S. Forest Service, National Archives and Records Administration, San Francisco Branch, San Bruno, California (Accession No. 74A-240/Location No. 9539).

purposes, and would not come in under either rule, yet the reasons for making the additions are perfectly valid and are approved without exception.[24]

On October 28, 1912, the boundaries of Nevada National Forest were formally adjusted when President William Howard Taft issued Proclamation No. 1221 (37 Stat. 1766). The proclamation stated in part:

> The withdrawal made by this proclamation shall, as to all lands which are at this date legally appropriated under the public land laws or reserved for any public purpose, be subject to, and shall not interfere with or defeat legal rights under such appropriation, nor prevent the use of such public purpose of lands so reserved, so long as such appropriation is legally maintained, or such reservation remains in force.
>
> The lands herein eliminated from the Nevada National Forest are hereby withdrawn for classification under the Act of June twenty-fifth, nineteen hundred and ten (36 Stat., 847), and will, when compatible with the public interests, be restored to settlement and entry under the laws applicable thereto on such dates as shall be fixed by the Secretary of the Interior and after such notice as he may deem advisable.
>
> This proclamation shall not prevent the settlement and entry of any lands heretofore opened to settlement and entry under the act of Congress approved June eleventh, nineteen hundred and six, entitled "An Act To provide for the entry of Agricultural lands within forest reserves."[25]

According to the Acting Secretary of the Interior the boundary adjustments were necessary because the original forest lines "had been found upon thorough examination to be drawn so as to include some rather low grade woodland areas and to exclude other heavier timbered tracts." The readjustment was designed "to take in the better lands from a Forest standpoint and to exclude those of less importance." The new boundary line was to be placed "in such a position with reference to the topography of the country as to include woodland over four cords per acre and to exclude woodland less than four cords per acre and at the same time have the line drawn as to be conveniently administered."[26] All told, some 335,840 acres were to be eliminated, leaving a total of some 330,480 acres within the adjusted boundaries.

The boundary adjustments included both additions and eliminations from the Snake Division. A narrow strip was eliminated from the southwest boundary of the division from the Mount Washington area to the 2d Standard Parallel North since it was "all benchland without cover or value for Forest purposes." Considerable acreage was added to the north, east, and south boundaries of the division "where the Forest boundary was placed along the lower foothills, thus including rolling land partly covered with pinion and juniper."

---

24. Robert D. Reynolds, Forest Examiner to District Forest, Ogden, Utah, June 20, 1911, L-Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

25. Nevada National Forest (Second Proclamation), By the President of the United States of America, A Proclamation, October 28, 1912 (Proclamation No. 1221 – 37 Stat. 1766). See Appendix Q for a copy of the full proclamation and accompanying maps.

26. Acting Secretary of the Interior to Secretary of the Interior, October 3, 1912, and attached memorandum, RG 49, National Archives and Records Administration, Washington D.C.

Among other things these additions incorporated Lehman Caves and its surrounding area within the forest.[27]

Further boundary changes to Nevada National Forest were made in 1919. The changes primarily involved the elimination of lands from the national forest and restoration of such lands to the public domain for homestead entry. Surveys indicated that none of the lands were of value for reservoir or water power purposes. The greater part of the lands to be eliminated (more than 52,000 acres) consisted of sagebrush "having practically no forest value." Only a small portion of the lands (some 225 acres) were "classified as of agricultural value."[28]

The boundary changes were formally implemented on January 25, 1919, by President Woodrow Wilson. The proclamation stated in part:

> And I do further proclaim and make known that in my judgment it is proper and necessary, in the interest of equal opportunity and good administration, that all of the excluded lands subject to disposition should be restored to homestead entry in advance of settlement or other forms of disposition, and pursuant to the authority reposed in me by the aforesaid act of September thirtieth, nineteen hundred and thirteen, I do hereby direct and provide that such lands, subject to valid rights and the provisions of the homestead laws requiring residence, at and after, but not before, nine o'clock A.M., standard time, on the sixty-third day after the date of this proclamation, and to settlement and other disposition under any public land law applicable thereto, at and after, but not before, nine o'clock A.M., standard time, on the seventieth day after said date.[29]

U.S. FOREST SERVICE ADMINISTRATIVE DEVELOPMENT IN THE SOUTHERN SNAKE RANGE

Documentation concerning the early administration of Nevada National Forest is somewhat sketchy. According to an inspection report prepared by Inspector of Grazing Ernest Winkler on October 25, 1916, Nevada National Forest, consisting of 1,260,800 acres, was administered by a forest supervisor, forest clerk, and four forest rangers. Headquarters for the forest were located in Ely. The forest was divided into five administrative units: Schell Creek Division (291,570.5 acres); Mount Moraja Division (132,620 acres); Snake Creek Division, which included the area of present-day Great Basin National Park (183,083.24 acres); Quinn Canyon Division (249,761.76 acres); and White Pine Division (362,929.94 acres). The five divisions were divided into four ranger districts, each under the immediate supervision of a forest ranger.

Although the districts were relatively large, Winkler characterized them as having "limited activity," thus requiring little supervision. The grazing authorization for the entire forest was

---

27. "History of the Nevada National Forest Written by George C. Larson in 1917," in Donnel J. Ward, comp., History of the Humboldt N.F. [1960], Historical Files, USFS, Elko.

28. Secretary of Agriculture to Secretary of the Interior, December 22, 1917, and Commissioner, General Land Office to Register and Receiver, Elko, Nevada, February 25, 1919, RG 49, National Archives and Records Administration, Washington, D.C.

29. Nevada National Forest, Nevada (Third Proclamation), By the President of the United States of America, A Proclamation, January 25, 1919, RG 49, National Archives and Records Administration, Washington, D.C. See Appendix R for a copy of the full proclamation and a portion of the map covering the area of the Snake Division. Shaded areas on the map indicate land eliminations.

6,000 cattle and horses and 56,000 sheep (1,500 cattle and horses and 13,000 sheep on the Snake Creek Division), and free use timber cutting and timber sales were limited. There was no range immediately adjacent to the forest that was used by sheep during the summer. Thus, there was little likelihood of trespass on forest lands from that source. The tendency of the cattle was to drift off rather than on to forest lands, because they were accustomed to range in the valleys below. In view of these conditions "the need for as intensive supervision as is necessary on the intensely used Forest of Utah and Idaho" was "not necessary on the Nevada." Thus, the Nevada could "be successfully administered by four rangers," but would "necessitate close field supervision on the part of the Supervisor and the development of systematic and organized effort."

According to the inspection report, the Snake Creek and Mount Moraja divisions were administered as part of the Baker Ranger District under the supervision of Forest Ranger Charles P. Thompson. District headquarters were located in the Baker Ranger Station "about a block, or a block and one-half from the Baker postoffice, store and hotel." The ranger station was located on 80 acres of land, 20 of which produced "a rather poor stand of meadow grass."

The Baker Ranger Station, according to Winkler, did not "present a very dignified appearance" and was "probably not up to the standard of the ordinary ranch houses in Baker." The house consisted of four small rooms and was "constructed on a square similar to the usual Ranger Station house." The structure, which served as a home for Thompson, his wife, and four children, as well as his office and storage space for Forest Service supplies, was "unsightly," having several colors of paint and no porch. A deteriorating barn was on the premises, and the unfenced yard was overgrown with weeds.

Among the important administrative issues facing the Baker Ranger District, as well as the entire Nevada National Forest, were water development, trail construction, sign installation, boundary marking, and fire control. According to Winkler, efforts should be initiated to enlarge the grazing area of the forest by securing a proper system of water development. He especially urged construction of long, galvanized one-piece troughs supported by cedar posts "for sheep watering purposes."

Trail development was to be deferred "in view of the more important projects, administrative and water development." Meanwhile, the rangers should be responsible for "brushing out and keeping intact present trails." This could be done with little inconvenience if the rangers would "carry an appropriate axe for the purpose, at least a portion of the time."

While road and trail signing had received little attention, Winkler felt that plans for such signs should be given immediate attention. He especially urged the necessity of placing fire warning signs on trees throughout the forest. As an example he commented on some fire problems on the Snake Division:

> While going over the Snake Division with Ranger Thompson, we rode up a small canyon southwest of Baker, known as Sage Hen Creek and down Strawberry Creek to Potter's June 11 claim. Shortly previous to our ride over this section, it was clearly evident that some one had gone through about the same route and started fires all along the trail, so that areas had been burned over along the streams, varying in size from five to twenty or thirty acres and in the aggregate had burned over about 150 to 200 acres of sagebrush land and a considerable amount of cottonwood and other underbrush. It is probable that the presence of a lot of conspicuous fire warnings may have had sufficient influence to avoid this occurrence. In any event I suggested to Ranger Thompson that he make an effort to ascertain who was responsible for the fires.

Winkler also recommended that permanent boundary marking be expedited on Nevada National Forest. The boundaries were to "be marked with cedar posts, peeled and made conspicuous by the use of paint." Where posts were not available, "appropriate rock monuments built after a pattern that will distinguish them" should be constructed.[30]

By 1921 the Baker Ranger District was being supervised by Forest Ranger Graham S. Quate. He was a new employee with the Forest Service, having had experience in ranching and handling of stock on the range. Prior to joining the Forest Service he had worked as a clerk for the Internal Revenue Service.

The ranger station in Baker had been improved since the earlier inspection in 1916 found the site to be in a deteriorated condition. The station's improvements consisted of

> a four-room frame house (26' x 26') boards verticle and battened with shingle roof; a two-room log building (one used for office and the other for supplies); a 10' x 14' garage, log with corrugated iron roof; an 18' x 28' log barn with shingle roof; a little shack used for a chicken coop; and a good yard fence and pasture fence. The house, through the industry and ingenuity of the present Ranger and his predecessor, has been made into a fairly comfortable dwelling. One room was beaver boarded last year and is very comfortable and presents a very neat appearance. The rest of the house should be beaver boarded at the very earliest opportunity. The Ranger at this station comes in contact with the public more than the rest on this Forest and this station is visited more and the Service should provide quarters which are a credit to it. The house has no foundation, but it is planned to construct one this year. The two-room log building used for office and store room was built of old logs previously used for another building. They have done a very good job considering the material available and the building is a very serviceable one, although not very pretty to look at. The office room has been beaver boarded and has a good floor in it and makes a very presentable office. The store room is satisfactory for its purpose. An old cellar is on the place which is not much account and presents a bad appearance. It should be replaced. The garage is a good little building. The barn is a one-story log building with shingle roof. It is 18' x 28' and has four double stalls. It's a pretty good stable, but is not provided with any room for hay, no grain bin nor saddle and harness room. There is a well constructed woven wire fence around the yard and it adds materially to the appearance of the place. There is also a good wire fence on the rest of the 80 enclosing the so called pasture. The pasture is a place for stock to exercise. Hay must be fed the year around. Arrangements are being made for water for the place. It is badly needed. Quate has put in a little lawn and a number of trees and has a small stream of water for them and a small garden. The station as a whole presents a very good appearance and shows a lot of work by the Ranger.[31]

---

30. Memorandum for the District Forester, Ernest Winkler, Inspector of Grazing, October 25, 1916, 1440-Inspection, Year 1916, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

31. Memorandum for District Ranger, C.B. Morse, Assistant District Forester, June 8, 1921, 1440-Inspection, Year 1921, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830). During the 1920s or early 1930s a Snake Administrative Pasture was fenced along Snake Creek for the use of the Baker District Ranger.

In September 1932, some eleven years later, Forest Supervisor C.J. Olsen visited the Baker Ranger District to evaluate its administrative operations. His report, which was prepared on February 11, 1933, contained the following description of activity in the district:

> The Baker Ranger District is the smallest district on the Nevada N.F. and contains a gross area of 297,508 acres, the average for the Forest being approx. 516,000 acres. There are 141 miles of exterior Forest boundary, the average exterior Forest boundary being 248 miles for the six ranger districts. Permit obligations are 608 C&H and 14,452 S&G with no lambing privileges.
>
> There is some little timber activity on the district and a lot of recreational use on the Lehman Creek and Baker drainages. The Lehman Caves National Monument, which is under the supervision of the Government, is also located on the district. Everything considered the work on this ranger district is below the average on this Forest.[32]

During the mid- and late-1930s the Baker Administrative Site was upgraded. New structures were built to house the district ranger and provide space for storage and administrative purposes. A barn, various outbuildings, and corral were constructed to care for horses used by the ranger to cover his district.

Various reorganizations during the next two decades led to more streamlined and efficient management of Nevada National Forest. In 1954 the forest was under the administrative oversight of a forest supervisor. A construction and maintenance foreman in charge of road and building maintenance answered directly to the forest supervisor. An administrative assistant also answered directly to the forest supervisor and supervised personnel in charge of safety, general office administration, purchasing, property, warehousing, budgeting, clerical help, headquarters improvements and maintenance, fiscal training, and inspections, and fire guards. Under the administrative assistant were four district rangers, each in charge of one or more forest divisions. The Baker Ranger District continued to administer the Snake and Mount Moriah divisions.[33]

In May 1957 the ranger districts in Nevada National Forest were consolidated as part of a cost-cutting move to streamline management. Among other organizational moves, the Baker and Ely ranger districts were combined with headquarters for the enlarged Ely District, which included the Snake, Mount Moriah, and Schell Creek divisions, located in Ely. Thus, the Baker district ranger position was eliminated and the ranger station downgraded in status to a guard station.[34]

Effective July 1, 1957, the boundaries of three national forests in Nevada were realigned. Nevada National Forest, with headquarters in Ely, was dissolved, the Charleston Mountain area near Las Vegas being transferred to Toiyabe National Forest and the White Pine and Ely ranger districts being transferred to Humboldt National Forest with headquarters in Elko. The realignment of administrative units was announced as "part of a servicewide program

---

32. Memorandum, C.J. Olsen, Forest Supervisor, February 11, 1933, 1440-Inspection, Year 1933, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

33. Organization Chart, Nevada National Forest, January 27, 1954, O-Organization-Nevada-General, CY 1954, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61B-320/Location No. 88817).

34. L.A. Dremolski, Forest Supervisor to Regional Forester, November 8, 1957, Notebook – "HNF History, Information & Education," and L.A. Dremolski, Forest Supervisor to Files, March 14, 1961, Notebook – "HNF History, Administration & Operation," Historical Files, USFS, Elko.

to increase the efficiency of operation and to give better service to the people who use the national forests."[35]

The Snake Division of Humboldt National Forest has continued to be administered under the auspices of the Ely Ranger District to the present. As indicated in an organization chart of the Ely Ranger District dated September 1, 1965 (a copy of the organization chart as well as one for Humboldt National Forest dated August 26, 1965, may be seen on the following pages), the district ranger represented "the Forest Supervisor in the administration of the Ely Ranger District" concerning "Range, Lands, Multiple-use, Engineering, Information & Education, Watershed, and Personnel."

Accompanying the organization chart was a position description for the Ely District Forest Ranger. This document stated that the District Forest Ranger was responsible "for the administration, protection, development, and utilization of all resources and improvements of the Ely Ranger District." The district covered some 585,000 acres, of which approximately 9,000 acres were alienated lands. The district included the Snake, Mount Moriah, and Schell Creek divisions, separated units extending over an area approximately 75 miles in length and 45 miles in width. Administration of the district involved "a variety of unusual and difficult technical and administrative problems and decisions in achieving and maintaining sustained yield production of important water, forage, wildlife and other resources." Administration was "further complicated" by "interrelated values of, and conflicting demands for, the various resources, and fluctuating economic conditions in adjacent or dependent communities."

In his administrative tasks the district forest ranger was aided by an assistant district ranger. This position had supervisory authority over two forest work leaders and administered programs related to fire, recreation, wildlife, improvements, finances, timber, and safety.[36]

Further consolidation and administrative realignment resulted in the reduction of ranger districts in Humboldt National Forest to five by 1984. The districts were Mountain City, Ruby Mountains, Jarbidge, Santa Rosa, and Ely. The latter district, headquartered in Ely, administered the Schell Creek, Snake, and White Pine divisions, as well as Ward Mountain, in White Pine County, the Grant Range in Nye County, and the Quinn Canyon Range in Nye and Lincoln counties.[37]

By the mid-1980s the Forest Service was using five facilities for management of the Snake Division. The Baker Guard Station consisted of an office, bunkhouse, two trailers pads, pumphouse, warehouse, barn, corral, fire cache, two metal buildings, and pasture. At Lehman Caves was a home (built in 1970), mobile home, audiovisual trailer, dump station with holding tank and grinder pump, and the Forest Service portion of the Lehman Caves Visitor Center. In Murphy Wash was a one-room cabin, outhouse, corral, and pasture.

---

35. News Service, Forest Service, Release, June 27, 1957, Notebook – "HNR History, Information & Education," Historical Files, USFS, Elko.

36. Position Description – Ely District Forest Ranger, Notebook – "Position Management Review, Humboldt N.F., 1965," Historical Files, USFS, Elko.

37. U.S. Department of Agriculture, Forest Service, *Humboldt National Forest Land and Resource Management Plan, Final Environmental Impact Statement*, [1986], III-1.

U.S. Department of Agriculture
Forest Service
Intermountain Region
August 26, 1965

Approved: Robert A. Rowan
Forest Supervisor
Date : 8-26-65

Organization Chart
Humboldt National Forest
1965

Forest Supervisor
#4-2896 Forester (Adm.)
Responsible to the Regional Forester for:
1. Administration, protection, development and utilization of all resources on the National Forest.
2. Multiple Use Coordination.
3. Forest Policy.
4. Budget Review.
5. Personnel Management Activities
6. I & E Activities
7. Safety

Staff Assistant
#4-3037 Forester (Gen.)
1. Fire Control Activities, Rural Fire Defense.
2. Multiple Use Plans.
3. Watershed Management and Related Programs.
4. Recreation Management, Plans and Programs.
5. Land Uses and Acquisition.
6. Timber Management and Plans.
7. Mineral Management.
8. Forest Air Officer.
9. River Basin, Plans and Programs.

#4-4149 --- Forester (Land Uses)
#4-6443 --- Airplane Pilot
#4-6446 --- Fire Control Aid

Staff Assistant
#4-4316 Forester (Gen.)
1. Range Management, Plans and Programs.
2. Wildlife Management, Plans and Programs.
3. Forest Training Officer.
4. Safety Coordinator.
5. I & E Assistant.

#4-5831 Range Conservationist
#4-5848 Wildlife Management Biologist

Staff Assistant
#4-5670 Civil Engineer (Gen.)
1. Road and Trail Programs, Construction and Maintenance.
2. Equipment Coordination.
3. Construction and Maintenance of Buildings.
4. Forest Sign Program.
5. Surveys - Rights of Way.
6. Water Rights Filings.
7. Forest Communications.
8. Land Line Locations.

#4-5645 Civil Engineer (Gen
#4-6060 Civil Engineer
#4-6289 Supervisory Civil Engineering Tech.
#4-6317 Civil Engineering Tech. (KELSH)
#4-5705 Civil Engineering Tech. (KEX)
#4-6116 Engineering Draftsman (Gen.)

#4-4791 Equipment Operations Lead Foreman
#4-5753 Equipment Operator

Administrative Officer
#4-3998
1. Business Management.
2. Fiscal Control.
3. Supply & Procurement.
4. Property Management Officer.
5. Budget and Finance Control.
6. Personnel Officer.
7. Ranger District and Field Project Inspections.
8. Training of Business Management Personnel.
9. Camera Coordinator.
10. Employee Suggestions & Awards
11. Job Corps Coordinator.

#4-6280
Administrative Ass't. Administrative Services and Personnel.
1. Supervision.
2. Training.
3. Contracting-Forest
4. Business Management of Project Fires.
5. Management Improvement.
6. Inspection.
7. Office Management.
8. Equipment management control.
9. Real and Personal Property Control.
10. Acting Administrative Officer.
11. Personnel Management Assistant. Appoints, Counseling, Welfare, Job Descriptions, Supervisions, Training in personnel procedures.

#4-6282
Administrative Ass't. Budget, Finance and Resources.
1. Supervision.
2. Training.
3. Financial Management.
4. Budget and Operating Plans.
5. Management Improvement.
6. Inspection.
7. Estimates for Apportionment Purposes.
8. Acting Administrative Officer.
9. Multiple Use.
10. Billings.
11. Resource Records.

#4-6319 Personnel Clk. (Typing)
#4-6165 Purchasing Agt.
#4-4732 Clerk-Steno.
#4-6013 Clerk-Dict.Mach. Transcriber

#4-5218 Payroll & Voucher Clerk (Typing)
#4-3708 Clerk (Typing)
#4-6090 Payroll & Voucher Clerk (Typing)
#4-6353 Clerk (Typing)

Mountain City Ranger District (1)
#4-4259 Forester (Adm.) (DFR)
#4-5904 Forester (Adm.)
#4-5523 Clerk-Typist

Gold Creek Ranger District (2)
#4-5618 Forester (Adm.) (DFR)
#4-6368 Forester

#4-4300 Clerk-Typist
#4-6433 Clerk-Typist

Jarbidge Ranger District (3)
#4-5619 Forester (Adm.) (DFR)
#4-5738 Forester

Lamoille Ranger District (4)
#4-288 Forester (Adm.) (DFR)
#4-4304 Forestry Technician (Gen.)
#4-2855 Clerk-Typist

Santa Rosa Ranger District (5)
#4-3421 Forester (Adm.) (DFR)
#4-4854 Range Conservationist
#4-5583 Forestry Technician (Gen.)
#4-4369 Clerk-Typist

Ely Ranger District (6)
#4-2698 Forester (Adm.) (DFR)
#4-3966 Forester (Adm.)

#4-6417 Clerk-Typist
#4-6416 Clerk-Stenographer
#4-5194 Janitor

White Pine Ranger District (7)
#4-4260 Forester (Adm.) (DFR)
#4-5903 Forester (Adm.)

Wells Ranger District (8)
#4-6061 Forester (Adm.) (DFR)
#4-5871 Range Technician
#4-3593 Clerk-Typist

U.S. DEPARTMENT OF AGRICULTURE
Forest Service
Intermountain Region
Humboldt National Forest
September 1, 1965

ELY RANGER DISTRICT ORGANIZATION CHART - 1965

Recommended _____
District Ranger

Approved _____
Forest Supervisor

District Ranger - Donald E. Cox
#42698 Forester (Adm) - GS-460-11
Represents the Forest Supervisor in the administration of the Ely Ranger District
Range, Lands, Multiple-use, Engineering,
Information & Education, Watershed, and
Personnel

Fred V. Solace
Forester #43966 (Adm) A.D.R. GS-9
Under general supervision of the District Ranger.
Is responsible for the administration and
protection of the Ely Ranger District
Fire, Recreation, Wildlife, Improvements,
Finances, Timber, and Safety

Frederick E. Anderson
Janitor WB-3501-02
Office Maintenance
Position #4-5194

Ruth W. Anderson
Clerk Steno [illegible]-16 GS-3
Purchasing
Personnel
Imprest
Collection Officer
Time Reports
Typing & Shorthand

Forest Worker Leader WL-5021-03
Is responsible on D-6 and D-7 for:
1. Recreation const. & mtnce.
2. S&W project const.
3. Const. of range impr.
4. Supervise Recreation Guards
5. Maintenance of buildings
6. Foreman on fires
7. Supervise fire guards

Forest Worker Leader WL-5021-03
1. Construction & mtnce. of trails
2. Mtnce. of range improvements
3. Straw boss on fires
4. Road const. & mtnce.

A trailer was located at Cedar Cabin Springs, and on Bald Mountain was a corrugated metal building housing a radio repeater (battery/photovoltaic system).[38]

During the early 1980s the Forest Service developed a Humboldt National Forest Land and Resource Management Plan to provide a strategy for managing the forest lands for the next ten to fifteen years. The final plan, which was approved in 1986 just prior to establishment of Great Basin National Park, provided for a reorganization of the Snake Division into a Snake Management Area of 128,669 acres and a Bristlecone Recommended Wilderness Management Area of 51,700 acres. The plan included management direction, standards, and guidelines for both areas.[39]

U.S. FOREST SERVICE REVEGETATION EFFORTS IN THE SOUTHERN SNAKE RANGE

During the years 1912-17 the Forest Service commenced a planting and seeding program on the Snake Division of Nevada National Forest. The principal areas of planting were along Snake Creek and in Pole Canyon. The purpose of the planting endeavor was "to determine the practicability of re-foresting this section of the country.[40]

A five-acre plot near the middle fork of Snake Creek was planted with two-year-old Douglas fir seedlings in the fall of 1911. Some 5,000 trees, obtained from Wasatch National Forest, were planted in "6' x 6' pits." By 1915 all the trees were dead, having been killed by harsh winter weather and frozen ground. It was noted that future planting should be completed by September 15.[41]

Planting and seeding operations were commenced on a 100-acre site near the "head of Pole Canyon, a tributary of Baker Creek" during the fall of 1912. The seeds and seedlings planted were "2-0 Yellow Pines" obtained from the Pocatello, Idaho, nursery of Ashley National Forest. Forest Supervisor George C. Thompson described the seedling project in October 1912:

> I arrived at the camp late in the afternoon of September 28, at which time the seedlings were removed from the crate and found to be in excellent condition. Preparations were immediately made for heeling in the plants and providing brush to afford about a half shade. The heeling in bed was located in close approximity to camp, but not on the area selected for planting, and each time upon leaving camp we would transfer to a temporary bed on the planting site about the number of plants we expected could be planted during the shift. The seedlings consisted entirely of 2-0 Yellow Pines, and consequently but one planting site was chosen. The site is located just above a small basin near the head of Pole Canyon, a tributary to Baker Creek. The basin is dotted with

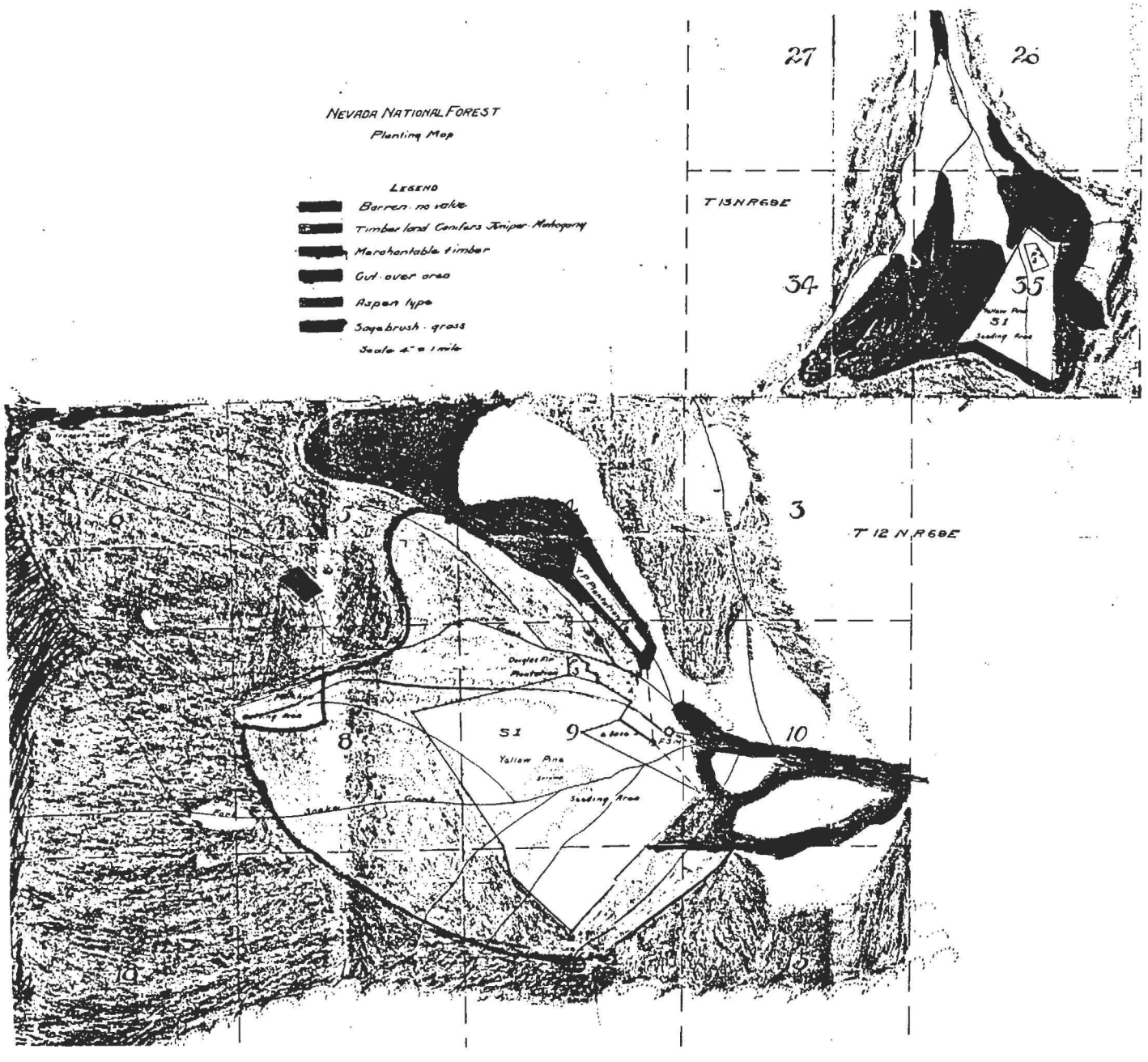
---

38. Development, Special Uses, Basic Data, Great Basin National Park General Management Planning Team Files, Denver Service Center, National Park Service. After the Forest Service home was built at Lehman Caves in 1970, the former district ranger's residence at Baker was moved to Ely for use as administrative quarters.

39. *Humboldt National Forest Land and Resource Management Plan*, [1986], IV, 156-69.

40. S. Planting – Nevada, Snake Creek, North Fork, Snake Creek, P2, 1911-15, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61B-320/Location No. 88818). See the following page for a copy of "Nevada National Forest Planting Map" [ca. 1912-17].

41. Progress Reports on Plantations, 1911-15, S. Planting, Nevada, Snake Creek, North Fork, Snake Creek, P2, 1911-15, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61B-320/Location No. 88818).


NEVADA NATIONAL FOREST
Planting Map
LEGEND
Barren - no value
Timber land Conifers Juniper Mahogany
Merchantable timber
Cut over area
Aspen type
Sagebrush - grass
Scale 4" = 1 mile
27
26
T 13 N R 6 E
34
35
3
T 12 N R 6 E
8
9
10
S1
Yellow Pine
Seeding Area

mature Yellow Pines and a fairly good natural reproduction. It is estimated that there is probably from 50 to 75,000 feet B.M. of mature Yellow Pine in the basin. The area chosen has a northwestern exposure and the slopes vary from 10° to 20°. The cover consists chiefly of quaking asp, interspersed with a scant reproduction of Alpine Fir and Douglas Fir, with occasional small open areas of sagebrush. The soil in places consists of an admixture of coarse washed gravel and black loam. In other places, and in fact throughout the major portion of the site, a rich black loam, practically free from rock, predominates. This soil was moist and rich, and should be very conducive to reproduction.

The work was performed entirely by Ranger labor, there being seven men, including myself, employed throughout the planting. Beginning the first thing in the morning, three men were designated to handle the mattock, three to do the planting and one man to distribute the plants. . . . This man [who dropped the plants] had to take the plants from the temporary heeling in bed, and in turn convey them to the holes in the five gallon can partially filled with a good rich puddling mixture, which covered the roots and kept them always fresh and in good condition. In planting, the utmost care was exercised to prevent the accumulation of debris, clots and barren soil around the roots, and the plants were set as in the operation of transplanting young cabbage plants, with a full determination of having each plant live and make a thrifty growth. This arrangement was followed throughout the job, and by so doing we were enabled to plant at the rate of 2,000 seedlings per day, completing the job in 2-1/2 days actual planting. I certainly anticipate the most promising results from this experiment.

The total cost of planting, including the time of Forest officers together with all expenses properly chargeable against the project, amounted to $207.83, or $41.57 per acre. Deducting Forest officers' time, plus cost of seedlings the cash outlay was $84.51, or an average of $16.90 per acre.[42]

In November Acting Forest Supervisor Doctor B. Bailey provided further data on the Pole Canyon seeding activity in a report to his superiors. He stated:

Camp was established at a spring in Pole Canyon adjacent to the seeding and planting areas. As, by far, the best stand of Yellow Pine in this Forest is in the canyon, the site chosen was thought very favorable to this species. The area selected for planting is covered with a thick stand of Aspen, except on the very southern part which has a stand of Yellow Pine, Spruce and Alpine Fir.

The site was poisoned on September 3, twenty days prior to the time seeding was begun. The formulae used was, wheat, one bushel; water, one quart; starch, two table spoons full; saccharine, two table spoons full; strychnine, two ounces.

The seeding was done entirely with corn planters. Our instructions were to plant the seeds at a distance of 7 ft. apart and twenty-one to the spot. These instructions were followed out as nearly as possible. The leaves and litter were removed from the ground each time so the seed could be planted in the ground.

---

42. "Report on the Pole Canyon Planting Site, Nevada National Forest," by George C. Thompson, Forest Supervisor, October 15, 1912, S. Planting – Nevada, Head of Pole Canyon, Baker Creek, P2, 1911-17, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61B-320/Location No. 88818).

> The soil was then firmly pressed over the seed with the foot. While seeding was in progress we were greatly bothered with field mice, which dug and ate the planted seed. At this time we tried poisoning them with wheat but had no success. We then poisoned some of the seed and put it out with good results. While I realized this was an expensive step to take, yet, with the rapidity with which the mice were eating the sown seed, and extreme measure became necessary. I see no reason why all the seed could not be poisoned before it was planted, as any rodents attacking it would be killed, before any appreciable damage could be done. Again, I see no reason why poisoning the seed to be sown would retard its germination. There seems to be some particular aroma attached to the seed, which makes the rodents hunt them out.[43]

Despite the initial promise of this planting program, however, the project proved to be a failure. By 1915 the seeds and seedlings were dead, primarily because of mice and rabbits who ate the seeds and terminal buds. The outside areas of the plant hills were "too large for poison to keep down the Rodents." The dry mulch and leaf mold was also too light and did not hold moisture long enough to enable the seeds to germinate. Forest Service officials concluded that in the future seedlings should be two years old before planting and that they should be established early before the "equanoxial storms."[44]

A third area on the Snake Division to be planted was a 512-acre plot along Snake Creek during 1912-13. Using yellow pine seeds obtained from Black Hills National Forest, the planting activity followed the same procedures as those used in Pole Canyon. By 1913 this planting area was declared a failure, the trees dying because of rodents, frozen ground, and very light leaf mold that did not hold moisture long enough for the seeds to germinate.[45]

Planting and reseeding programs on the Snake Division continued sporadically into the 1930s. On February 11, 1933, for instance, Forest Supervisor C.J. Olsen reported:

> We visited a small planting area in Pole Canyon and it is apparent that we are getting fairly good results from this planting. Ranger Taylor required the sheep permittee to place a temporary fence around the area last summer so as to avoid damage by sheep since it was necessary for him to water his sheep in close proximity to the area. A small portable fence was constructed and removed when the sheep were taken away, which involved very little expense.
>
> Taylor is keeping plant development records but in at least one case the plant development area was poorly selected. The plant development area should be representative of the unit or zone which it is to represent and we should avoid any tendency to locate them in easy locations if they are not representative of the zone. Seven plant development signs will be sent Ranger Taylor before the

---

43. "Nevada National Forest, Seeding Report," by Doctor B. Bailey, Acting Forest Supervisor, November 11, 1912, S. Planting – Nevada, Head of Pole Canyon, Baker Creek, P2, 1911-17, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61B-320/Location No. 88818).

44. Reports of Seeding Areas, S. Planting – Nevada, Head of Pole Canyon, Baker Creek, P2, 1911-17, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61B-320/Location No. 88818).

45. Reports on Seeding Areas, S. Planting, Nevada, Snake Cr., Middle Fork, Snake Creek, P3, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61B-320/Location No. 88818).

opening of the growing season in accordance with my promise to him. His plant development areas are now marked with improvised wooden signs.[46]

U.S. FOREST SERVICE TIMBER UTILIZATION AND PRESERVATION POLICIES IN THE SOUTHERN SNAKE RANGE

Timber utilization policies in Nevada National Forest were governed by provisions in the aforementioned *Use Book*. In that volume Pinchot stated:

> All timber on forest reserves which can be cut safely and for which there is actual need is for sale. Applications to purchase are invited. Green timber may be sold except where its removal makes a second crop doubtful, reduces the timber supply below the point of safety, or injures the streams. All dead timber is for sale.
>
> The prime object of the forest reserves is use. While the forest and its dependent interests must be made permanent and safe by preventing overcutting or injury to young growth, every reasonable effort will be made to satisfy legitimate demands.[47]

To understand the prevailing conditions of "timber sales" and free use business on lands of the Nevada National Forest Supervisor George C. Thompson recommended three field trip inspections during June 1916. Two of the inspections were along Snake Creek and in Pole Canyon. Conducted by Forest Examiner Nilo B. Eckbo, the inspections were ordered "to make examinations of current methods of disposal of timber, with special reference to marking, utilization, brush disposal, scaling, sawmills and the careful compliance with Forest Service regulations."

The timber sale of 10 m. feet at the head of Snake Creek had been awarded to Rudolph Merchum on July 17, 1915. The inspection involved examination "of the old cutting areas, the present sale area and the remaining virgin stand." The timber consisted of yellow pine, Englemann spruce, Douglas fir, white and black fir, bristlecone pine, and lumber pine. Cutting in the canyon, according to Eckbo, had been conducted for years. The logs were hauled to the mill which was "still located at the lower edge of the timber." Eckbo reported further:

> The lumber was used throughout the Snake Valley by settlers for building of dwellings, barns and so forth, which is also the case at the present time. All trees except dead have been marked for cutting. . . . Defective and diseased trees as well as undesirable species have been selected whenever possible and a great amount of dead and down material has been removed. Special credit should be given the ranger and operator in the successful utilization of decayed down material for fuel purposes.
>
> The stumps were found to be in excellent condition as a whole, and only in exceptional cases could the trees be utilized to a smaller diameter limit in the top. Two trees were noticed to have caused damage to young trees. It was

---

46. Memorandum, C.J. Olsen, Forest Supervisor, February 11, 1933, 1440 – Inspection, Year 1933, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

47. Quoted in Pinchot, *Breaking New Ground*, p. 273.

also observed, however, that the choppers efforts in saving the young growth had been omitted by circumstances.

The contract calls for lopping of tops and scattering of brush. The tops had invariably been lopped but the brush had frequently been left where it fell. Ranger Thompson called the operator's attention to this point when we returned to the mill.

Scaling is done on the millyard, where 26 logs had been yarded ready for scaling. These logs were scaled by Ranger Thompson and afterwards check scaled informally by myself. The latter scale exceeded the former 12% due to full top diameter measurements.

A second timber sale to be inspected was located in Pole Canyon. This sale "of 170 M. feet yellow pine veterans scattered along the canyon" had been awarded on November 22, 1915, to the Baker Livestock Company owned by Guy Saval, the wealthy sheepraiser who had purchased the Baker Ranch the previous year. Eckbo noted that the largest trees were six feet in diameter and eighty feet in height and scaled "as much as 4500 feet to the tree." He went on to note:

They are decidedly overmature and while Yellow pine does not decay rapidly they are far beyond the profitable stage and should be cut now when the timber is urgently needed by the settlers. Since these trees probably represent some of the largest Yellow pines in the State of Nevada, a few should be left for their botanical interest and scenic beauty. The system of marking was discussed thoroughly with Ranger Thompson and we scaled carefully a few of the trees that had been cut. Mr. Thompson's scale varied only 5% from the check scale this time which may be considered a permissible margin of error. The stumps were all in fine shape and logs cut to a very satisfactory top diameter limit. The larger limbs were to be hauled to Baker for fuel which would leave the cutting area in tip top shape. Mr. Guy Saval, who represents the Baker Livestock Co., was granted advance cutting in this case, but could not take advantage of this privilege for unforseen reasons. . . . Mr. Saval expects to be able to complete the cutting this year according to the contract, and move the sawmill from Snake Gulch to Baker where the sawing is to take place.

Lumber hauled to Baker from Ely a distance of 60 miles, costs in the neighborhood of $40 to $50 per M. feet. This price is, of course, almost prohibitable for the settlers in poor circumstances.

Mr. Saval, who owns the only sawmill in this locality at this time is particularly interested in the upbuilding of the country and would probably be willing to have the sawing done at reasonable rates although this may curtail his profits to a small extent.

The timber was appraised prior to the advertised sale to Mr. Saval and $3.00 is considered full value for the timber.

Eckbo concluded his report by urging that Forest Supervisor Thompson personally examine all timber sale activities in the future. Permits for free use cutting were to be issued semi-annually in person on areas conveniently located for the permittee. He recommended liberal disposal of free use timber material "to settlers in their early stages, when they have a hard task to make both ends meet" and "secondly, to people developing the mineral wealth of the country." Sales of local timber to mining companies were to be discouraged,

however, when those firms could "obtain similar material at reasonable rates from outside sources."[48]

Timber utilization issues on the Snake Division were not solely concerned with timber sales. In November 1927, for instance, Associate Range Examiner Arnold R. Standing drew attention to the problem of cutting down young pinyon pine trees on forest lands by Indians living in the Baker area. The Indians were cutting the trees "to make shelters around their camps" when they were "on the Forest to gather pine nuts." They cut limbs for the shelters and "cut the tops out of the trees to get the nuts." These practices, according to Standing, should be stopped immediately by Forest Service officials.

In his report Standing also commented on a beetle infestation problem on the south side of Lehman Creek just above the Lehman Creek campgrounds. Some fifteen western yellow pine trees had been killed, about six of which he "judged to be sorrel tops." Although the area did not have a heavy stand of western yellow pines, he felt the remaining trees were "worth saving, especially as they serve as seed trees, and may be the means of starting a good stand of Western Yellow Pines." Furthermore, the "beautiful Western Yellow Pines at the Lehman Creek campgrounds" were in danger of becoming infested. Several days treatment could halt the infestation.[49]

In February 1933 Forest Supervisor C.J. Olsen reported that there was little lumbering in the Baker Ranger District. He observed, however, that there was "considerable merchantable timber on the district" and there was "likely to be occasional demand for poles, house logs, and sawtimber from the neighboring small towns of Baker, Nevada, and Garrison, Utah, and the ranchers surrounding the district." While there were no active timber sales, the district ranger had prepared "suitable volume tables for use in making sales by standing tree estimate."[50]

While there are no documentary records of major forest fires on the Snake Range during U.S. Forest Service administration of the area, the bureau developed policies and practices for fire prevention and suppression. By 1937 a Fire Plan Organization Chart had been developed for the Baker Ranger District. It provided that four three-man fire fighting outfits be located at Lehman Caves National Monument, Lehman Creek Recreational Area, the Gruden Ranch at Shoshone, and the Yelland Ranch in Spring Valley. Each outfit was equipped with fire tools, water bags, first aid kits, and related accessories.[51]

Beginning in 1937 old wooden fire warning signs were removed from Nevada National Forest and replaced with new standard signs. The old wooden signs, which read "Fire Season, Be Careful," were generally deteriorating, difficult to read, and often located in remote areas. The new signs had standard board backs and were set up "on juniper posts in carefully selected locations along roads and on recreation areas."

---

48. Memorandum for the District Forester, Timbersale and Free Use Business on the Nevada National Forest, July 1, 1916, Nilo B. Eckbo, Forest Examiner, 1440 – Inspection, Year 1916, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

49. Memorandum for the District Forester, Arnold A. Standing, Associate Range Examiner, November 8, 1927, 1440 – Inspection, Year 1927, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

50. Memorandum, C.J. Olsen, Forest Supervisor, February 11, 1933, 1440 – Inspection, Year 1933, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

51. Memorandum, A.E. Briggs, Assistant Forest Supervisor, August 18, 1937, 1440 – Inspection, Year 1937, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

Fire control and prevention became a primary concern on the Snake Division in 1939 after three fires broke out along Lehman Creek. The largest fire covered 85 acres and resulted from a camper dumping hot coals in a garbage pit. The fire spread "to mature Bromus tectorum" and was fanned by high winds, thus threatening "to wipe out the improvements on the Lehman Creek Campground and camping equipment of approximately 100 campers." The campground was spared, but the fire "spread to the north hillside where it was stopped that evening." Since the campground area had been protected from grazing for years, forestry officials determined that "a dangerous hazard" had developed. Thus, the area was "fireproofed" before the next camping season, and the area was reopened to sheep grazing in the fall and spring to keep the grass down.[52]

Fire patrols continued to be the primary organizational units used to control and prevent fires on the Snake Division. In 1954, for instance, it was noted that "per diem guards" located around the forest boundaries were serving "both on detection and suppression."[53]

Timber resources and harvesting policies on the Snake Division were described in a Forest Service brochure in 1960. The pamphlet noted:

> Englemann spruce, Douglas fir, aspen, alpine fir, bristlecone pine, limber pine, mountain mahogany, pinon pine, and juniper comprise the timber species of the Snake Range. There are 21,800 acres of commercial forest land which has sufficient timber volume to allow cutting of 1 to 1-1/2 million board feet each year.
>
> In addition to their importance for watershed protection, these stands take care of local needs for sawtimber, posts, poles, mine props, and fuelwood. Since the timber stands of the Snake Range are rather limited, and therefore highly valuable, only the cutting of old mature trees and diseased, damaged or insect infested trees is permitted. Thus cutting together with thinnings made for stand improvement takes care of local demands for wood products.
>
> Besides timber products the Forest Service sells about 1,500 pinon pine, Christmas trees annually for local use. Pinon nut harvesting is also a popular and profitable activity on the extensive pinon pine stand of the Snake Range.

During good years several tons of pine nuts were harvested by commercial pickers and private individuals. Free use permits allowing a family to pick 25 pounds of nuts were required and could be obtained at Forest Service offices in Ely and Baker. Commercial pickers were charged 5 cents per pound for the nuts.[54]

By the mid-1980s the Forest Service estimated that there were 560,000 acres of unreserved commercial forest land in Humboldt National Forest. This land was composed

---

52. G.W. Southwick, Assistant Forest Supervisor to Regional Forester, August 21, 1939, 1440 – Inspection, Year 1939, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

53. L.A. Dremolski, Forest Supervisor to Ranger Fluckiger, August 24, 1954, 1440 – Inspection, 1954 Extra Reports, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

54. U.S. Department of Agriculture, Forest Service, *Snake Range, National Forest Features in Nevada, An Educational Series*, 1960, in Nevada Outdoor Recreation Association Papers, Nevada Historical Society, Reno.

primarily of 530,000 acres of commercial pinyon-juniper, located in the southern end of the Ruby Mountain Ranger District and the lower slopes of the Ely Ranger District. The remaining 30,000 acres were composed of isolated stands of Engelmann spruce, subalpine fir, and limber pine at higher elevations of the Snake and Schell Creek divisions. Because of limited access, low volume per acre, scattered stands, and the absence of area milling and processing facilities, all timber was classed as unsuitable for industrial wood production.

The public's consumptive use of wood products from the forest during the mid-1980s consisted primarily of fuelwood, Christmas trees, pine nuts, posts, and poles. A Forest Service document stated:

> Demand for fuelwood, in comparison to other wood products has seen the largest increase in recent years. Demand is greater than supply in some areas. However, it is estimated that only a small percentage of the Forest's potential sustained yield pinyon-juniper fuelwood capacity is currently being utilized. About 4,000 cords of fuelwood are harvested annually from July through October. Approximately 600 posts are cut from juniper stands on the Forest each year generally for local use by ranchers.
>
> Approximately 2,000 Christmas trees are harvested annually during November and December with pinyon pine the dominant species harvested. The limited timber stand improvement program releases Christmas trees for harvest later.
>
> The supply of pinenuts depends on the pinyon pine cone crop which can vary from a few thousand pounds to a bumper crop of 100,000 pounds or more per year. Bumper crops usually occur every 3-5 years. Commercial demand for this product exceeds supply despite production levels achieved.[55]

U.S. FOREST SERVICE WILDLIFE AND FISH MANAGEMENT POLICIES IN THE SOUTHERN SNAKE RANGE

Little specific documentation is available concerning the variety and quantity of wildlife and fish in the Snake Range prior to the early 1920s. In his *History of Nevada* published in 1881, Angel discussed these topics for White Pine County at large:

> The larger wild game of White Pine County consists of mountain sheep, deer and antelope; the smaller kinds include the wild cat, lynx, fox, coyote, hare, porcupine, rabbit, badger, duck, goose, sage hen, snipe, curlew, grouse, and prairie chicken. The mountain hare is much larger than the valley hare, and is gray in color in the summer, and snow white in winter. The ducks, geese, curlew, and snipe, are of several varieties. The sage hen feeds on sage only in the winter, and in the summer and fall makes fine food. Deer are more numerous in the mountains than when the county was first settled. In the month of May they migrate northward, and return southward in October, by regular trails.
>
> After the settlement of some of the valleys, the coyotes became exceedingly troublesome, and a war was waged against them by the ranchers, that almost resulted in their extermination. Soon afterwards, the hare and rabbit multiplied wonderfully, and became more troublesome than the coyotes had been. A shooting match, that occurred in Steptoe Valley last season, illustrated their

55. *Humboldt National Forest Land and Resource Management Plan,* [1986], III, 22-23.

multiplicity. The rival parties were organized by Samuel Mosier, and consisted of six hunters each, chosen from among the best shots of Hamilton. After three hours of lively work, the supply of ammunition gave out. The number of hare and rabbit slain were found to number 609, and an even larger number of dead and wounded were found lying about the field the next day. During the present season hare and rabbit have mysteriously disappeared, from the prevalence of some disease among them, no doubt. The same thing has occurred once before, within the memory of the Indians.

There are only two streams in White Pine County that have fish in them. In 1876 trout were placed in Cleveland Creek, in Spring Valley, and have multiplied rapidly since. Lehman Creek, which flows into Snake Valley and then sinks, also contains trout, and it is supposed that the Mormons, who formerly occupied a portion of the valley, placed them there.[56]

During the late nineteenth and early twentieth centuries fishing became an increasingly popular activity in the Snake Range as reported in various newspaper columns. On September 20, 1882, for instance, the *Ward Weekly Reflex* reported:

> The rest of the fishing party, Mr. and Mrs. W.R. Bassett and Mr. and Mrs. Steve Tucker, returned from Lehman's Creek, 50 miles east of this place, Saturday. All told the party caught about 300 trout. Steve proved to be the boss fisherman and got away with more than half the catch. They reported the immediate vicinity of Lehman's creek to be a Paradise as compared to this section. They left pears, peaches and other fruit ripe on the trees and before reaching Ward drove into a snow storm.[57]

Later on September 7, 1900, the *White Pine Daily News* noted that "P.M. and Mrs. Baker, Geo. S. Robison and wife, in company with Mr. and Mrs. C.V. Wheeler of Salt Lake City are upon Baker creek fishing."[58]

During the first decade after establishment of Nevada National Forest wildlife protection and management was virtually non-existent on the Snake Division. In 1916, for instance, it was reported that there was "little regard for the game laws of Nevada" by the general public as well as the state officers responsible for enforcement of the laws. Thus, forest rangers concentrated their activities on "a campaign of education in an effort to create a better public sentiment for game protection." Rather than arresting those who violated the law, they reported violations to the state authorities.

While little was done to protect game, the Forest Service took steps to reduce predators on the Snake Division. In cooperation with local stockmen trapping operations were begun to reduce the threat of coyotes and mountain lions to livestock on the division. In September 1919, for instance, the Murray Sheep Company hired a trapper who caught more than 300 coyotes in the vicinity.[59]

---

56. Angel, *History of Nevada*, p. 649.

57. *Ward Weekly Reflex*, September 20, 1882.

58. *White Pine Daily News*, September 7, 1900.

59. Memorandum for the District Forester, Ernest Winkler, Inspector of Grazing, October 28, 1916, 1440 – Inspection, Year 1916, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830), and George C. Larson, Forest Ranger to Forest Supervisor, Ely, Nevada, March 20, 1918, Historical Files, USFS, Ely.

According to a lengthy report on wildlife prepared by Forest Supervisor Alexander McQueen on December 28, 1921, "general conditions affecting big game" in Nevada National Forest were "favorable to an increase." The "big game" consisted primarily "of deer of the white and black tail species, and mountain sheep." The conditions favoring such an increase included:

> The areas inaccessible to grazing by domestic stock assure an abundance of feed. The depressed condition of the mining industry in this section has reduced the number of hunters at least fifty percent during the past two years. The change in the game laws during the past season to allow only the taking of horned deer in open season has undoubtedly had its effect on the number of deer killed by hunters. Considerable publicity was given to this change in the law by the local Game Warden and Forest Officers and has met with general approval among the local people. As yet there have been no game preserves created on this Forest. There is, however, some agitation to have certain areas set aside as State Game Refuges, on which no hunting will be allowed. These areas have been selected by the Forest Officers in connection with the County Game Warden. It has been proposed that the State Livestock Association take up with the State Legislature at its next session the question of game policy, including the creation of game preserves throughout the State. This policy does not contemplate the restriction of grazing in the use of these game refuges, nor is it believed by the County Game Warden or the Forest Officers that any restriction of grazing should be made for the protection of game within this forest.

Although satisfied with the existing game laws, McQueen urged that there should be "a more uniform date for the open [hunting] season in the various counties adjoining" the national forest. Efforts were underway to have the local county commissioners establish a uniform date. McQueen estimated that some fifty hunters had killed about fifty deer on the entire forest in 1921.

Destruction of predatory animals was, according to McQueen, a key concern of forest officials. He observed "that we are getting less results in the extermination" of such animals "than in the past few years, due principally to the reduction in the number of hunters under the jurisdiction of the Biological Survey." A "general poisoning campaign," however, was being planned by the survey. The Forest Service believed that such a campaign "would result in a very material reduction in the predatory animals on and adjacent to the Forest."

With recent abolition of the Nevada State Game Department, forest rangers had been appointed as deputy game wardens. In this capacity, the rangers, according to McQueen, brought "game violators before the State authorities because it gives the impression that violations are not only being prosecuted by Federal officers but that the local authorities are in sympathy with this movement." In 1921, for instance, a man was prosecuted for fishing without a license. This infraction was reported to the county game warden and the local justice of the peace, conviction was "secured without delay, and a fine of $15.00 collected."

Game birds in Nevada National Forest consisted primarily of sage hens, grouse, and quail. According to McQueen, "practically no hunting of these birds" occurred until mid-August, and it was thought "that with favorable weather conditions during the hatching period, these birds should soon increase in numbers without further protection."

The report noted that area fishermen believed the supply of fish in forest streams to be less than fifteen years before and more than three years before. According to McQueen,

artificial restocking of many forest streams and a smaller number of fishermen in recent years accounted for the increase. The average fish taken weighed about three-quarters of a pound. It was recommended that the fish limit laws be changed from ten pounds to ten fish per day, thus making enforcement of catch limits easier for forest rangers to monitor.

Forestry officials believed the only practical method of maintaining the supply of fish was by artificial restocking. Among the creeks recommended for future restocking on the Snake Division were Baker and Snake. During 1921 some 100,000 eggs of the black spotted trout species had been secured from the White Pine County Fish Hatchery in Ely and planted in forest streams between August 15 and August 30 with a loss of less than five percent.[60]

Although actual estimates of mule deer on the Snake Division were not available, Forest Service reports indicate that only a small population existed in the early 1920s. To increase the size of the herd, the Lehman State Recreation Ground and Game Refuge was established on July 20, 1923. The refuge, a cooperative venture between the Forest Service and state wildlife officials, encompassed approximately 175,512 acres and comprised "All that portion of the Nevada National Forest known as the Snake Division and included within Townships 10 to 14 north, in Ranges 68 to 70 east."[61] Hunting was prohibited on the refuge in an effort to encourage the growth of the mule deer population.[62]

Game and fish conditions in Nevada National Forest continued to be monitored by Forest Service personnel during the 1920s. In January 1930 Forest Supervisor C.A. Beam reported on the condition of big game, game birds, and fish:

> Deer are practically the only big game animals on this Forest. There are some antelope on areas adjacent to the Forest and probably a few within the Forest, but very few. There may also be a few mountain sheep within the Forest. Deer have been increasing right along for the past ten years or more until now they are quite numerous. This is due largely to the enforcement of game laws and to favorable natural conditions.
>
> There are three State Game Preserves on this Forest. No additional ones are necessary. There is some agitation on the part of stockmen to have the game preserves eliminated or opened to hunting. It may be found necessary to open them to hunting from time to time, if the deer become too numerous and do not drift out onto adjoining range where hunting is permitted during open seasons. It does not seem reasonable to believe that they should ever become congested

---

60. Annual Fish and Game Report, Nevada National Forest, December 28, 1921, Historical Files, USFS, Ely. The White Pine County Fish Hatchery had been established in Ely by E.L. Fletcher in 1912. State documents, however, indicate that fish were being "transplanted" in county streams as early as 1909. *Biennial Report of the Surveyor-General and State Land Register, 1909-1910*, p. 68, in Appendix to Journals of Senate and Assembly, State of Nevada, 1911, 25th Session, Vol. I; *Biennial Report of the State Fish Commission, 1911-1912*, pp. 6-7, in Appendix to Journals of Senate and Assembly, State of Nevada, 1913, 26th Session, Vol. 3; and *Biennial Report of the Surveyor-General and State Land Register, 1913-1914*, p. 45, State of Nevada, 1915, 27th Session, Vol. I.

61. Nevada Fish and Game Commission, Wheeler District, "Special Report-Game, South Snake Division," by William C. Parsons, January 25, 1959, 86th Congress, Box 21, Folder 347, Howard W. Cannon Papers, Special Collections Department, James R. Dickinson Library, University of Nevada, Las Vegas.

62. U.S. Forest Service, "Cooperative Management Plan, Lehman Deer Herd (Revised 1950)," December 8, 1950, Historical Files, USFS, Ely.

within the preserves, as there is sufficient open range of similar character adjoining the preserves onto which they can readily drift.

The game birds found on this Forest are sagehens, grouse, quail and doves. They are all decreasing in numbers. This is due largely to the large number of hunters, the length of the open seasons and the liberal bag limits. It may also be partly due to unfavorable weather conditions during the nesting season and to trampling by stock on nesting grounds.

To build up and maintain a normal supply of game birds, it will probably be necessary to restrict hunting to a point where it will be possible for them to increase in numbers and then continue such restrictions as are necessary to maintain a supply. This could be done by closing the hunting seasons for a few years, then make the open season short and reduce the bag limit. Restriction of grazing on nesting grounds would aid materially, but such action would undoubtedly be protested by the stockmen. The game preserves are not the favorite game bird areas, so additional protection outside the preserves is necessary to maintain a normal supply. No additional bird sanctuaries are recommended, or restrictions in grazing.

The fish supply is remaining about stationary. This condition is due only to the fact that continuous restocking of the streams is done by the County and Nevada Consolidated Copper Company from their hatcheries. From 1/4 million to 1/2 million or more fish are placed in the streams annually. These fish are usually allowed to reach a size of from 3 to 6" before they are put into the streams. Such continuous restocking is necessary in order to supply the extra large demand for fishing and avoid unwelcome restrictions.

Under present practice by the County officials, an occasional stream is closed from time to time in order to increase the number of fish or allow those in the streams to increase in size.

All the streams on this Forest are in need of annual restocking in order to supply the heavy demand for fishing to a reasonable extent. Approximately 160 miles are properly stocked now and 70 miles are unstocked or only partially stocked. At least 1/2 million fish annually are required in order to keep these streams stocked without applying undue restrictions. They should be delivered to the White Pine County Game Warden, Ely, Nevada or to the Nevada Consolidated Copper Company, McGill, Nevada and shipped to McGill, Nevada. The County and the Copper Company can handle fish eggs or any size fish at their hatcheries. They have all the facilities necessary for hatching and rearing the fish and placing them in the streams. The County and Company can handle the fish or eggs at any time and can place them in the streams at any time between April first and November 30.

There are no water falls or other obstructions to fish that need consideration. One thing that does need serious consideration though is the screening of streams to prevent fish from going out into irrigation ditches and never returning to the main streams. Numerous fish are lost in that way and that is the main problem confronting the Game Warden. No satisfactory screening device has been found which does not require constant care.

Some 41 miles of streams on the Snake Division were stocked with fish – 35 miles on the west side and 6 miles on the east side.

Beam observed that White Pine County had a salaried game warden who was appointed by the county commissioners. The game warden, who had charge of all fish and game matters in the county, was assisted by deputies, including all forest rangers, the county sheriff, and his deputies. In 1929 the White Pine County Game Protective Association had been organized in Ely to advance fish and game interests in the vicinity of Nevada National Forest.[63]

Because of the rapid growth in the deer population on the Lehman game refuge, hunting of such animals was reinstituted in 1930. Five years later, however, it was reported that few deer were killed on the preserve because "they were scattered over the entire area, as the water did not dry up, and there was more forage." Many hunters entered the Murphy Wash area each winter as it was the wintering ground for the deer, but the forest rangers and game wardens apparently were unable to prevent illegal out-of-season hunting. Deer were getting scarce on the Mount Moriah Division by the mid-1930s because of excessive hunting. Lions were also becoming a problem in the forest as their numbers and toll of deer were increasing. Hence the Forest Service stepped up efforts to eradicate these animals, and in 1936 twelve lions were killed on the Snake Division.[64]

In 1939 a predator elimination program was begun on the Lehman game refuge. A bounty of $30.00 was placed on mountain lions. Several hunters with lion dogs entered the area and killed 23 lions during 1939-40.

During the early 1940s area livestock raisers began complaining that large concentrations of deer were using the southern part of the refuge as a wintering ground. An investigation by C.M. Aldous of the U.S. Fish and Wildlife Service found the range in that area to be in critical condition. Palatable shrubs were "highlined and hedged," and the deer "appeared to be in poor flesh."

To further examine the deer herd problem a special committee was selected in March 1943. The committee, consisting of representatives of the Forest Service, Fish and Wildlife Service, and sportsmen's and livestock associations, reconnoitered the Murphy Wash-Johns Wash area at the south end of the Snake Division. The conclusions of this group read in part:

> Our investigations definitely show there has been a very large increase in the number of deer generally on these areas and generally throughout Eastern Nevada. There are several reasons for this increase.
>
> 1. Effective elimination of predatory animals.
>
> 2. Favorable winter conditions and large fawn crops.
>
> 3. Reduction in the extent of poaching, probably brought about by more favorable public sentiment toward game protection.
>
> 4. The existing Buck law which prohibits the killing of Doe deer.
>
> 5. Keeping refuges closed to hunting after the deer population has reached the carrying capacity of their winter range.

---

63. Five Year Fish & Game Report, Nevada National Forest, January 25, 1930, by C.A. Beam, Forest Supervisor, Historical Files, USFS, Ely.

64. Report, Nevada, Annual Grazing, 1935, December 1935, and Report, Nevada, Annual Grazing, 1936, November 1936, by Warren Taylor, Forest Ranger, Historical Files, USFS, Ely.

> Winter snows force the deer out of the higher country into lower and more confined areas. When the number of deer increases to a point where there is sufficient food supply on these areas of winter concentration, then there is very great danger of destruction of the forage species on which the deer must depend for subsistence and survival. It is the habit of deer to congregate on their favorite areas, and no practical way has been found to remove them to other areas where food is more plentiful. If this condition is allowed to continue, deer in poor flesh condition and subsequent losses of both food supply and deer can definitely be expected. The only practical and economical method yet found is orderly removal of excess numbers of deer from these congested areas by hunters during the hunting season.
>
> The deer problem on the Schell Creek Game Refuge and on the Snake Division has developed more rapidly than we had expected and has now reached a point where the forage supply is seriously threatened with destruction because of too many deer, and a high percentage of the deer, and particularly the younger and smaller deer are now in poor flesh condition. The younger and smaller deer being in poor flesh condition is one of the best indications of over used ranges because the older and larger deer are able to reach higher on the browse species for food, such as Mountain Mahogany and Cowania, on which they largely depend for food during the winter months when smaller browse plants are covered with snow. It is probable that some winter loss can be expected this year among young deer and older bucks and does because of malnutrition.

Upon the recommendation of the committee permits were issued to remove 200 does during the 1943 hunt to help alleviate the problem.[65]

By 1944-45 the growing deer herd on the Snake Division was causing alarm to Forest Service officials. The heavy concentration of deer was exacerbating the already critical condition of the range resulting from overgrazing. The deer were "keeping the browse and weed types pretty well highlined and grubbed." It was estimated that deer were using the following percentages of plant life on the range: stipa (20%); dandelion (30%); penstaman (40%); erigoron (20%); Big Sage (70%); snowberry (50%); ribes (20%); and tetrademia (50%).

To alleviate this problem Forest Service officials began working with the White Pine Sportsmen's Association to promote hunting on the Snake Division. Because of the relative inaccessibility of the region it was decided to establish horse camps in Decathon, Murphy Wash, and Baker Creek canyons to help hunters remove deer from the area during the fall hunting seasons.[66]

The continuing deer herd problem on the Snake Division led Forest Service officials to initiate a "Cooperative Management Plan" in December 1946. The plan was to be a cooperative venture with sportsmen, livestock raisers, and concerned state and federal

---

65. Cooperative Management Plan, Lehman Deer Herd (Revised 1950), December 8, 1950, and A.F. Briggs, Forest Supervisor to the Honorable Board of County Commissioners, April 3, 1943, Historical Files, USFS, Ely.

66. Report on Inspection – Baker District, A.E. Briggs, Forest Supervisor, August 18, 1944, 1440 – Inspection, Baker R.D., and Memorandum for Files, A.E. Briggs, 1440 – Inspection, LFI – Range – South End, Snake Division, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88829).

agencies. Its purpose was "to produce the maximum numbers of deer on a sustained yield basis" consistent "with other uses of the forest."

The plan was updated and revised in December 1950. It was conservatively estimated at that time that there were 2,000 mule deer, known collectively as the Lehman deer herd, on the Snake Division. The plan detailed the problems relating to the growing Lehman deer herd:

> The summer range occupied by the deer herd is located mainly within the Snake Division of the Baker Ranger District. Deer range on the intermediate and higher elevations which are made up of timber, aspen, browse, and small meadow areas of vegetation. Most of these summer ranges are in the poor or fair condition classes and in general show a slight upward trend. Much of this higher range land can not be used by domestic livestock because of the rough terrain, timber, or lack of sufficient stock water. The summer range is generally not considered to be overgrazed by deer. There are some local areas, however, that definitely show excessive deer use, two of which are Lehman Creek Basin and the west facing slope of Decathon Canyon below Mustang Spring. There is some improvement in the Lehman Creek Basin area.
>
> Deer use the lower fringes of the area during the winter months with the main body of the herd occupying the Murphy Wash, John's Hollow, and Big Springs Wash areas. Bureau of Land Management lands adjacent to the forest also receive very excessive deer use, particularly in the Trough Mountain area. The areas of heaviest deer concentration show positive evidence of over use of bitter brush, cliff rose, mountain mahogany, and sagebrush which forms the bulk of the deer diet. . . . The winter range is the limiting factor for this deer herd.

The plan described the extent and nature of the conflict between game and livestock interests on the Snake Division. Among other things the report stated:

> At the present time there is some slight conflict between domestic livestock and deer in the Lehman Herd. The actual competition for feed on the forest during the established grazing season is not great and any problems that might exist will be solved when the Lehman Deer Herd is reduced to what the winter range will support. As has been stated before, our limiting factor is the winter range. In the past, summer concentrations of deer have been observed in Lehman Creek Basin, Decathon Canyon below Mustang Spring, and in Granite Basin in Snake Creek. Both Granite Basin and Lehman Creek Basin are improving. In the winter range area, outside the refuge and near Trough Mountain, all of the edible shrubs are hedged and highlined, in some places to a height of about seven feet.
>
> No areas have been closed to livestock for big game use and no such action is anticipated. The aim will be to reduce the animals responsible for the range damage down to what the range will support on a sustained yield basis.

The report also commented on livestock uses outside the national forest boundaries which affected the deer. It stated:

> The winter deer range outside the refuge is used by two permittees. Swallow Bros. use the Murphy Wash-John's Hollow unit and the Dearden Bros. use the area from John's Hollow east to and including the Chokecherry Unit. During the past four years cattle exclusively have been using this outside range. It is probable that use by domestic livestock in former times was responsible for

> some range depletion observed on this area. At the present time there is not much cattle use on the deer winter range area but the range is still being very severely over used by deer.

The plan noted that there had been a steady increase in the number of hunters on the Snake Division during the postwar years. During 1949, for instance, it was estimated that the 1,000 hunters on the division were "probably four times as many" as those of the mid-1940s. That year a total of 382 deer were killed. Thus, forestry officials concluded that wildlife was becoming more important to the public. White Pine County realized considerable revenue from the sale of hunting licenses, especially from non-resident hunters, and local merchants profited from selling hunting supplies.

The document recommended that the deer herd should be reduced until there was no further range damage by the deer. After the range was "properly stocked" and the range improved, the size of the herd could be increased proportionately. With the deer herd "reduced to the proper size and with reasonably good predator control," it was estimated that approximately 25 percent of the herd would be available for removal by hunters annually.

The plan provided that a deer census be taken each spring. In addition to counting the deer, observations would be made of the condition of the range and animals and information obtained on the ratio of fawns to adults. Based on this census recommendations would be made on the numbers of deer to be removed in any given year.

Forest Service officials admitted that past efforts to reduce the deer herd through hunting had been unsuccessful. In this respect the plan stated:

> In the past we have tried special "doe hunts" in addition to the regular "buck" season. We have tried special "doe hunts" in addition to hunts for "either sex." This year we limited the hunt to "either sex" but extended the season two weeks longer than for any other area in the county. To date none of these methods have produced the desired results, although we may have had some success this past season by the extended length of time. We have encouraged local people to set up hunting camps and provide horses and guide service for hunters. These camps have only had fair success for the past two seasons.

Despite the lack of success in these efforts, however, the plan noted:

> It is felt that with an extended season such as we had in 1950, a regular "either sex" hunt, normal weather which will force the majority of the deer to the south end of the mountain during late October, and some good publicity, we should be able to reduce the size of this deer herd.

Accordingly, the Forest Service intended to correlate predator control with other phases of the deer herd management plan to insure that the "numbers of predators are in balance with numbers of deer and hunters."[67]

The "Cooperative Management Plan" served as the means to reduce the Lehman deer herd by nearly one-half during the 1950s. The Nevada Fish and Game Commission reported on the results of the plan in 1959:

---

67. Cooperative Management Plan, Lehman Deer Herd (Revised 1950), Historical Files, USFS, Ely.

The available information indicates that the deer herd is "resident" year-around in the South Snake Division and the Lime Hills with the exception of limited numbers of migratory deer from other areas. In the summer months, deer are normally found at elevations of 8,000 feet or more throughout the entire range, and in the winter months the distribution is limited, in the main, to the 6,000- to 8,000-foot belt surrounding the mountain range. . . . When winters are mild, a considerable amount of range is available, however, with increased depth of snow, the herd is concentrated into a relatively narrow belt around the base of the range. The large concentration of deer formerly observed in the Murphy Wash-Big Springs Wash in late November and December, due to open winters during the past 2 or 3 years, have not been seen in great abundance until January.

From 1944 through 1955, an average of 68 to 82 percent of the available browse production was consumed by deer. These percentages were considerably in excess of the tolerance limits of the plants concerned.

The orderly harvest of deer has been the primary tool used by the Nevada Fish and Game Commission to maintain the herd within the carrying capacity of the range. When regular season hunter pressure provided insufficient harvest to maintain this balance in the Snake Range, special tag quotas and extended or late seasons were recommended. In 1943, for example, 200 anterless permits were issued and since that time approximately 3,000 special permits have been made available for this area. The last special hunt of 500 either sex tags was in 1955 during the period of October 9 through December 11. Late hunts were emergency measures recommended only when the major portion of the range was in jeopardy and it became necessary to reduce the total herd.

During the period of 1948-58, an average of 328 deer annually were reported harvested by an average of 546 hunters in the South Snake Range. . . . However, based on the present estimated size of the deer herd, the South Snake Range has a potential to support a hunting pressure of 800 persons each year and provide a reasonable degree of hunter success.

Approximately 15 percent of the regular season deer harvest in White Pine County during the last 10 years has been made in the South Snake Division of the Humboldt National Forest. However, special hunts, whenever used, have increased this percentage. Usually, 60 percent of the hunters are successful in the South Snake Range, thus the number of deer killed doesn't represent total hunter use of the area. For example, an estimated 445 hunters harvested 267 deer during 1958.[68]

The deer population continued to decline during the 1960s, bottoming out in 1965 and 1966. During the 1970s the deer herd numbers fluctuated, depending on weather and range conditions and hunting pressure. In 1979 the Forest Service and Nevada

68. *1959 Hearings*, pp. 140-41. Also see L.A. Dremolski, Forest Supervisor to Ranger Fluckiger, August 24, 1954, 1440 – Inspection, 1954 Extra Reports, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830), and *Snake Range, National Forest Features in Nevada, An Educational Series, 1960*, in Nevada Outdoor Recreation Association Papers, Nevada Historical Society, Reno.

Department of Wildlife developed a new program to manage and improve fish and wildlife habitats on the national forests in Nevada.[69]

While much of the attention of Forest Service wildlife management policies focused on problems associated with the Lehman deer herd, fishing on the Snake Division also received consideration. By the late 1950s it was reported that lake fishing on the division was "limited to the recovery by anglers of legal-sized fish planted each season in some of the high mountain lakes." The two bodies of water that were stocked annually were Baker and Johnson lakes. These lakes were "so shallow" that fish could not "survive the winters." Attempts to stock Stella Lake were unsuccessful because of the thin atmosphere at that elevation. Stream fishing was produced by annual stocking of Strawberry, Lehman, Baker, and Snake creeks with trout from the State Fish and Game Hatchery along Snake Creek, a rearing pond facility built during the late 1940s just outside the forest boundary that was used to stock all fishable waters in White Pine County. In 1957 approximately 1,000 pounds of "catchable-size fish" were released in these streams and lakes. On the west side of the Snake Range it had been found that "a native and apparently uncontaminated strain of Utah Cutthroat persists in Pine and Ridge creeks." Thus, the Nevada State Fish and Game Commission had closed the streams to fishing to protect that "relict subspecies."[70]

A special report on fisheries on the Snake Division by the Nevada Fish and Game Commission in January 1959 found that sport fishing in the area had increased during the previous decade. All indications pointed to the continued heavy recreational use of the two "high mountain lakes" and the eight "fishable streams" in the division. Because of the "limited natural reproduction of trout in the cold mountain streams and lakes plus the heavy angler use," it had been "necessary to supplement the wild trout population with reared trout in order to maintain a satisfactory level of fishermen success."

Of the 259.3 miles of fishable streams in White Pine County, some 57.4 miles were located in the Snake Division. These streams were:

Stream	Fishable Length
Strawberry Creek	4.5 miles
Lehman Creek	8.0 miles
Baker Creek and Tributaries	11.5 miles
Snake Creek and Tributaries	14.4 miles
Big Wash and South Fork	10.0 miles
Willard Creek	3.0 miles
Shingle Creek	4.0 miles
Williams Creek	2.0 miles
	57.4 miles

69. U.S. Department of Agriculture, Forest Service, Intermountain Region, in cooperation with Nevada Department of Wildlife, *A Program to Manage and Improve Fish and Wildlife Habitats on the National Forests in Nevada*, 1979, p. 11.

70. U.S. Department of Interior, National Park Service, Region Four, "Field Investigation Report, Lehman Caves – Wheeler Peak, Portion of Southern Section of Snake Range, White Pine County, Nevada, October 13 to 17, 1958, and October 29 to November 13, 1958," February 1959, p. 35, and *Snake Range, National Forest Features in Nevada, An Educational Series, 1960*, in Nevada Outdoor Recreation Association Papers, Nevada Historical Society, Reno. Since reports by early explorers and government surveyors indicate that cutthroat trout were not found on the west side of the Snake Range, it is possible that this species migrated to the Spring Valley side of the mountains via the Osceola ditches. Telephone interview with Kathy A. Kaiser (former Forest Service employee), Osceola, Nevada, September 17, 1988.

Following the recommendations of a stream and lake survey conducted by the Nevada Fish and Game Commission, it was found that some 4,209 pounds of reared trout should be stocked annually in Snake Division waters "to meet the demand of the present angler usage taking into consideration the stream potentials." This poundage represented some 23.8 percent of the total poundage recommended for all waters of White Pine County. This percentage was more than double that (10.7 percent) stocked in Snake Division streams in 1953 when only one lake and four streams had been stocked – Johnson Lake and Baker, Lehman, Snake, and Strawberry creeks.

Among the streams receiving the heaviest angler pressure in White Pine County during the late 1950s were Baker, Lehman, and Snake creeks. Snake Division waters received nearly 20 percent of the angler pressure in the county. The waters and the amount of angler usage they received were:

Waters	Angler Usage (Days)
Strawberry Creek	47
Lehman Creek	942
Baker Creek and Tributaries	1,479
Snake Creek and Tributaries	1,291
Big Wash and South Fork	9
Johnson Lake	94
	3,862

Pine and Ridge creeks on the west side of the Snake Division remained closed to fishing "to preserve the small population of a pure strain of cutthroat trout." Anticipated use of these trout for initial stocking of streams necessitated that full protection be afforded these waters. It was noted that this strain of cutthroat tended to remain in the higher stream elevations during periods of run-off when compared with other species.[71]

Fishing on the Snake Division continued to be a major focus of Forest Service wildlife management in cooperation with the Nevada Fish and Game Commission. In 1967-68, for instance, Forest Service officials reported that Lehman and Baker creeks had good fishing and were stocked regularly during the summers. Snake Creek, which was stocked in summer, had good fishing where it was not diverted for irrigation purposes. Strawberry Creek had fair fishing for small fish and was not stocked as heavily as the other streams. Stella and Teresa lakes had no fishing, but plans were formulated for stocking catchables in both bodies of water on a "put and take" basis during the summer of 1968. Baker Lake, which was stocked with cutthroat trout, normally supported fish with good results being reported. Johnson Lake supported fish and afforded fair fishing for pan size fish.[72]

---

71. "Special Report – Fisheries, South Snake Division," Nevada Fish and Game Commission, Wheeler District, by William O. Parsons, January 25, 1959, 86th Congress, Box 21, Folder 347, Cannon Papers, University of Nevada, Las Vegas.

72. "Reference Text For Preparation of Forest Recreation Maps and Information Brochures," [1967-68], Historical Files, USFS, Elko. On February 19, 1962, a special use permit was let to the Snake Creek Irrigation Company to install a 3.2-mile concrete pipeline through the central portion of Snake Creek as a water conservation and irrigation measure. Construction of the pipeline resulted in the loss of approximately one mile of fishable water, but it created a more constant and dependable water supply for the stream below which had been subject to periodic flooding. During subsequent years the Forest Service cooperated with the Nevada Fish and Game Department in a stream habitat improvement project to help recover the quality of the fishery in the vicinity of the pipeline. Special Uses, Snake Creek Irrigation Company, March 21, 1978, Water Transmission, Great Basin National Park General Management Planning Team Files, Denver Service Center.

In 1979 the Forest Service began a program to transplant Rocky Mountain bighorn sheep on the Snake and Mount Moriah divisions. Eight bighorn were released on the Snake Division in May 1979 and twelve more in March 1980. All of the sheep were captured in Rocky Mountain National park in Colorado. The 1979 sheep were all marked with a blue plastic eartag, and two ewes were fitted with radio collars. The 1980 sheep were marked with red eartags, and three ewes were fitted with radios. During the next several years individual sheep were sighted in the Hub Mine Basin area and in the high county between Wheeler Peak and Mount Washington.[73]

U.S. FOREST SERVICE RECREATIONAL DEVELOPMENT POLICIES IN THE SOUTHERN SNAKE RANGE

The Snake Mountains have been used by local residents of central eastern Nevada for fishing and camping trips since the 1880s. One of the earliest camping trips in the range to be noted in White Pine County newspapers was that of ten people in August 1904. The Ely-based *White Pine Daily News* reported:

> Jos. Newman and wife, Mrs. G.F. Newman and daughter, Misses Any and Dorothy Parker, Mrs. A.J. Millick, Ernest and Albert Millick and Steve Baker, left Saturday for a camping trip on Cleveland creek, Osceola and Willard creek.[74]

By the early 1920s the Forest Service was taking steps to improve the recreational aspects of the Lehman Caves-Wheeler Peak area. In October 1922, for instance, Cada C. Boak, who played a significant role in the campaign to have Lehman Caves designated a national monument that year, noted:

> A good auto road is completed to the caves, where is found a beautiful park and pleasant camping grounds. Good trout fishing is to be had and a saddle trail is being built to the summit of Mount Wheeler . . . via the rim of its Castellated Gorge, whose vari-colored perpendicular walls drop to a depth of 2,500 feet, which, with its perpetual glacier combine to make up as bold, rugged and daring a piece of Alpine scenery as is to be found anywhere in the west.[75]

By the mid-1920s the Forest Service established the rudiments of a campground along Lehman Creek in Lehman Canyon several miles above the caves. When C.N. Woods, assistant district forester, visited the Lehman Creek campground in the fall of 1926, he found it to be very "desirable." There were four tables and two unpainted toilets at the campground. Woods urged that signs be installed directing visitors at the cave to the campground as the two recreation areas were two or three miles apart. signs relating to garbage and refuse disposal, as well as fireplaces, were needed at the campground.[76]

---

73. Sanders to Ganzert, [1985], Historical Files, USFS, Ely.

74. *White Pine Daily News*, August 11, 1904.

75. Cada C. Boak, "Lehman Caves:- The Wonder Under World," October 17, 1922, p. 13, Special Collections Department, University Library, University of Nevada, Reno.

76. Memorandum for the District Forester, C.N. Woods, Assistant District Forester, October 28, 1926, 1440 – Inspection, Year 1926, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830). Grazing was prohibited in the campground.

In November 1927 Associate Range Examiner Arnold R. Standing made proposals to increase recreational possibilities on the Snake Division. Among other items, he urged that "improvement and, in places, construction of the trail from the Lehman Creek camp ground to the top of Mount Jeff. Davis" be undertaken. In the near future he felt this would "very probably be a needed improvement to fully develop the Lehman Cave area for recreational purposes." Horses could be rented at the cave, and a "hike or ride to the lakes in Lehman Canyon, and to Mount Jeff. Davis" might "become an important recreational attraction." Standing also noted that there were unpainted "tables at the camp ground on Baker Creek."

A small stream at the Lehman Creek campground had "a nasty taste" and had caused sickness to those drinking from it. The water raised "in marshy ground." Thus, Standing urged that the water be analyzed, and, if found unsanitary, the Forest Service should "place a sign near the creek telling campers not to use the water but to get water from the main creek."[77]

During the 1930s the Forest Service devoted increasing attention to recreational development on the Snake Division. In February 1933, for instance, Forest Supervisor C.J. Olsen observed:

> Considerably more attention will be necessary to recreational use. There are some wonderful camp sites in Baker Creek and Lehman Creek and a number of additional recreational improvements are necessary in order to make the areas of highest value to the public and in order for us to be able to keep them clean and minimize fire hazard.[78]

During 1934 the State of Nevada established a Transient Relief Camp along Lehman Creek some five miles above Lehman Caves and the Civilian Conservation Corps set up a "stub camp" at Burbank near Preuss Lake. These two camps supplied laborers to the Forest Service to develop a road up Lehman Canyon toward Stella Lake and from there a trail to the summit of Wheeler Peak and to improve and enlarge camping facilities along Lehman, Baker, and Snake creeks. In August 1937 it was reported that the Lehman Creek camp was "shaping up very well and all phases of the job have the earmarks of pretty good workmanship." The area was "well posted with recreation signs" and materials had been ordered for three fountains. While details of the campground improvements were sketchy, fireplaces, tables, toilets, and camp sites apparently were laid out according to a systematic design for the first time.

To accommodate the growing visitation to the Snake Division, the Forest Service gave increasing attention to road maintenance during the late 1930s. The three roads to receive attention were those along Baker, Lehman, and Snake creeks.[79]

---

77. Memorandum for the District Forester, Arnold R. Standing, Associate Range Examiner, November 8, 1927, 1440 – Inspection, Year 1927, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

78. Memorandum, C.J. Olsen, Forest Supervisor, February 11, 1933, 1440 – Inspection, Year 1933, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

79. A.E. Briggs, Assistant Forest Supervisor to Forest Supervisor, August 18, 1937, 1440 – Inspection, Year 1937, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830). Also see C.J. Olsen, Forest Supervisor to P.P. Patraw, Superintendent, Zion & Bryce Canyon National Parks, April 26, 1934, Vertical Files, Great Basin National Park, and Personal interview with Sunny Roberts, Baker, Nevada, September 17, 1988.

The recreational opportunities of the Lehman Caves-Wheeler Peak area were described in *Nevada: A Guide to the Silver State* compiled by workers of the Writer's Program of the Work Projects Administration in 1940. The study stated that U.S. Highway 6 crossed the Utah-Nevada boundary some 94 miles west of Delta, Utah, and proceeded "southwest toward mountains in eastern divisions of the Nevada National Forest." After traveling 11.1 miles west of the state boundary there was a junction with a "graded dirt road." From the junction travelers were to turn

> Left on this road to BAKER (gasoline), 1.6 m.; R. (straight ahead) here 3 m. on a Forest Service road to small STELLA LAKE. . . . Cars are parked here near a marked trail that circles R. around the lake and climbs steeply for about 8 m. (4 hrs.) to the summit of MOUNT WHEELER. . . . The trail to the summit rises rapidly through three life zones of plant and animal life. In summer sections of the trail are almost obscured by Indian paint brush, lupines, and other bright blooms.
>
> At Baker the main side road turns R. to LEHMAN CAVES NATIONAL MONUMENT . . . 7.7 m. . . . The caverns, amid pine, spruce, fir, juniper, and mountain mahogany, are in limestone, among high peaks and deep glaciated canyons of the Snake Range. A large variety of birds nest near the streams and fishing and game hunting are popular sports in the region for which this is a base.
>
> The road to the caves continues northward to a junction with the Forest Service road up Mount Wheeler.[80]

Preparatory to anticipated post-World War II recreational demands numerous improvements were made to the Lehman Creek campground during the summer of 1945. For the first time there were references to lower and upper campgrounds. The road leading to the lower campground had been badly washed as a result of a plugged rock culvert. The rock culvert was replaced with an 18-inch by 14-foot steel culvert, and new surfacing material was hauled in to "smooth up" the road. The water system pipeline in the lower campground, which had been seriously damaged by frost in 1943-44, was replaced. The lid on the head box to the Lehman campground water system was repaired and locked, and a screen was placed over the intake pipe to prevent small particles from entering the pipeline and plugging the fountains. A new garbage pit was dug, fire signs were replaced, and directional signs were installed. A new steel culvert was constructed on the road near the entrance to the upper campground to provide for drainage and keep the road dry and passable. The large campground sign at the junction of Garrison and Lehman Caves roads was reoiled and relettered.[81]

The recreational opportunities in the Lehman Caves-Wheeler Peak area received growing publicity during the postwar years in various periodicals as the State of Nevada sought to advertise the distinctive qualities of the region to the pleasure-oriented public. In September 1947, for instance, *Nevada Magazine* carried the following piece describing the area surrounding Lehman Caves National Monument:

> Recent appropriation of the state highway board for improvement of the road to Lehman caves and highway six to the state line is expected to be a landmark

---

80. Writer's Program of the Works Projects Administration, *Nevada: A Guide to the Silver State*, pp. 241-42.

81. Memorandum for Files, A.E. Briggs, July 11, 1945, 1440 – Inspection, LFI – Baker R.D., RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88829).

in the monument's history. Previously the foot of the mountain was reached only by driving over rutted and rock dirt roads for six miles from Baker, Nevada, and from Ely, across several miles of unimproved Highway six.

Territory surrounding the monument, which itself takes in one square mile of federally owned land, proves a fisherman's paradise.

Wild life is profuse with herds of deer. . . . Mountain lions are occasionally seen, as are coyotes and rabbits, while owls, blue birds, robins, jays, fly-catchers, hawks, and water ouzels are among those to be found. Botanically the district supports a great variety of wild flowers in season, and forests of pine, spruce, fir and mahogany line the slopes.

An interesting trip is to the top of Wheeler. . . . Capping the towering Eastern Nevada mountain is a glacial lake called Stella.

The lake and peak of the mountain, higher up, may be reached either through an overnight climb, or horses may be obtained at some of the ranches in the valley to use for making the ascent.[82]

During the late 1940s the Forest Service paid increasing attention to improvement of the recreational potential of the Snake Division. In 1948 Forest Supervisor J.M. Herbert noted that when recreational use of the Lehman and Baker creek areas increased as a result of the oiling of the Lehman Caves road and U.S. Highway No. 6, a part-time attendant would be hired to oversee those developments. The Baker Creek drainage, a popular fishing spot which the Forest Service felt had some of the finest scenery in the forest, was viewed as an area that would soon be intensively used by visitors. Hence it was important that the area "be classified by a recreational planner" before any major development was undertaken. As of the summer of 1948 only a few tables and one toilet were in place. During the summer of 1947 some tables and toilets were installed at "popular spots" along Snake Creek, a stream that was used largely by people from Garrison and Baker. The Forest Service viewed this area as having potential for a group picnic area to accommodate local needs.

Development and maintenance of roads and trails on the Snake Division also received increasing attention by the Forest Service during the postwar years. In July 1948, for instance, Forest Supervisor Herbert reported that the "Lehman Caves forest highway #20 should now be modified because the State has constructed the grade and will oil this summer a completely new route from Baker to the Caves." Accordingly, the road from the cave to the campground needed improvement, and the "half mile of development road between the camp and picnic area" required graveling. The Baker Creek Road, which had been partially relocated in 1947 to eliminate two bridges, needed "graveling badly because of rocks in [the] road bed which are more frequent than dirt." The spur road to the cave needed "a new approach at the Caves," because this "cut-off" would soon receive considerable use. While the Snake Creek Road was "in good shape after heavy maintenance" in 1947, its cattle guards should be "painted white" and "tiger eye reflectors" should be installed. The Baker Creek Trail had been maintained as far as the Deishman Cabin in 1947. Further attention, however, was to be given to cross ditching for drainage, blazing with standard blaze, and trail marking through openings either with rock monuments or posts. Where it was necessary to relocate the trail around snow slide areas, steps should be taken to watch the grade and alignment to eliminate "steep pitches" and "kinks." Rather than lower the trail standard, crews "should go to extra work of clearing through

82. Maurya Wogan, "Subterranean Wonderland," *Nevada Magazine*, III (September 1947), 39-40.

snow slide debris." The trail from the Deishman Cabin to the lake needed marking and relocating, because it was "impossible to find where it is supposed to go." The Shoshone Trail from Baker Creek to the Snake Creek divide was in "fair shape and maintenance" but needed drainage and marking work.[83]

The Forest Service continued to improve the camping facilities along Lehman, Baker, and Snake creeks during the early 1950s. By 1954 the Lehman Creek campground had:

6 pit toilets
18 stoves
20 tables
3 swings
1 teeter
26 garbage cans
3 footbridges
1 amphitheater

The campground had a water system extending 930 feet, which was enclosed by 1/8 mile of fencing. The less developed Baker and Snake creek campgrounds had a combined total of fifteen tables and fifteen garbage cans.[84]

A report filed by Forest Supervisor L.A. Dremolski in July 1954 indicated that the Lehman, Baker, Snake, and Strawberry creek areas were "becoming increasingly popular each season as recreation areas." The creeks were "extremely popular due to their permanent streams, fishing, scenic beauty and retreat from the valley heat." The "lakes and alpine scenery at the heads of these drainages" probably exceeded "anything in the State of Nevada." In addition, some of the best deer hunting in eastern Nevada could be found on the south end of the Snake Division. Room for future recreational development was "great," but existing fund limitations made it "necessary that we attempt to maintain our present recreation improvements to the highest standard possible and keep the areas clean as best we can." Garbage disposal was a significant problem and was being handled by a local Boy Scout group.[85]

Recreational use of the Nevada National Forest "increased tremendously during the mid-1950s.[86] This increase placed added pressure on the limited recreational facilities of the forest and induced the Forest Service to commence further development of recreation areas. In September 1955, for instance, fourteen sites were established at Lehman Creek campground to accommodate trailers, and the number of camping sites in the campground was increased to 31.[87] This increase in the number of camping sites could not keep up

---

83. J.M. Herbert, Forest Supervisor to Library, July 1, 1948, 1440 – Inspection, LFI – Baker R.D., RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88829).

84. Nevada National forest, Campground Maintenance Plan, 1954, O – Plans – Nevada, Maintenance – CY 1954, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61B-320/Location No. 88817).

85. L.A. Dremolski, Forest Supervisor to Ranger Fluckiger, August 24, 1954, 1440 – Inspection, 1954 Extra Reports, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

86. *Salt Lake Tribune*, April 7, 1957.

87. Nevada Forest, Trip and Job Plan, Baker D-2 Ranger District, September 1955, O – Plans – Nevada, Current Work Trip & Job Plans, D-2, CY 1955 & 1956, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61B-320/Location No. 88817).

with demand, however, because there were often as many as 100 parties requesting camping space on summer weekends.

The growing number of tourists to the Lehman Creek-Baker Creek-Lehman Caves area led to Forest Service plans for extensive tourist development. In July 1956 plans were made for a $50,000 service station, store, coffee shop, and twelve cabin complex just below the Lehman Caves National Monument boundary. The complex, which included plans for stables to house horses for hire, was to be located approximately one-half mile below the cave entrance "on the north side of the surfaced highway to the caves, between the two cattleguards, one marking the boundary of the national forest and the other the boundary of the national monument." The plans called for a twenty-year lease to be granted to H.K. Anderson of St. George, Utah, who would build the facilities. Although the complex was never built, the plans for its construction were indicative of Forest Service intentions to accommodate tourists.[88]

To insure the long-range recreational use of the Lehman Creek area Public Land Order 1355 was issued on November 5, 1956. This order provided that the 40-acre "Lehman Creek Recreational area" be "withdrawn from all forms of appropriation under the public-land laws, including the mining but not the mineral-leasing laws" and reserved for the use of the Forest Service as a recreational area.[89]

Several projects were undertaken in 1957 to improve recreation prospects on the Snake Division. A 2-1/2-mile fence was constructed on the divide between the Baker Creek and Lehman Creek drainages to keep livestock on the Snake Creek allotment out of Lehman Caves National Monument and the Forest Service's Lehman Creek campground and trailer camp. The National Park Service cooperated by furnishing $450 worth of materials for the project. The trail from the Lehman Creek campground to Stella Lake was reconstructed as were three miles of the Baker Creek Trail. The Baker Creek Road was reconstructed from the state highway below Lehman Caves National Monument to Baker, thus moving the road off National Park Service land and on to Forest Service ground. The project consisted of 5/8 mile of new graded gravel road construction.[90]

During the winter of 1958-59 several ski organizations from Ely visited the mountains within a 100-mile radius of the town in search of a suitable site for development of a new ski resort. As a result it was determined that Bald Mountain, some two miles north of Wheeler Peak, offered the finest potential for a future winter sports facility. Among facilities planned for the development were construction of seven ski runs, a rope tow or slip lift to Wheeler Peak, a ski lodge and ancillary support structures, and a two-lane, paved access road from U.S. 6-50 to the resort. The projected development was never constructed, however, because of public opposition headed by conservation groups, difficulties in finance and acquisition, Forest Service designation of the area as Wheeler Peak Scenic Area in 1959, and continuing efforts by various groups to establish a national park in the Snake Range.[91]

---

88. Unidentified newspaper clipping, July 26, 1956, Notebook – "HNF History – Appendix," Historical Files, USFS, Elko.

89. "Title 43 – Public Lands: Interior, Public Land Order 1355," November 5, 1956, in *Federal Register*, November 9, 1956.

90. L.A. Dremolski, Forest Supervisor to Regional Forester, November 8, 1957, Notebook – "HNF History, Information & Education," Historical Files, USFS, Elko.

91. Waite, "Proposed Great Basin National Park," Part II, pp. 707-17.

By the late 1950s the number of tourists visiting the Snake Division had grown to 50,000 annually. Thus, public demand for expansion of recreation facilities and opportunities on the Snake Division led the Forest Service to initiate a major development program in the Wheeler Peak area in 1959. The development was made possible by "Operations Outdoors," a Forest Service program to expand national forest recreational resources throughout the United States. The development in the Wheeler Peak area was also designed in part as an effort to forestall the growing interest for establishment of a national park in that vicinity.

As part of the development program a 28,000-acre section of the Snake Division was designated the Wheeler Peak Scenic Area on February 13, 1959. The designated area extended from Buck Mountain, six miles north of Wheeler Peak, to Granite Peak on the south and included the upper portions of Lehman, Baker, and Snake creeks, and Big Wash canyon on the east side of the crest of the range. The designation and development of this area was planned around three principal objectives:

1. Provide adequate protection of the scenic attractions, geologic values, and flora and fauna of the area.

2. Provide facilities to meet the needs of increasing use by the public for recreation purposes.

3. Intensify multiple use and sustained yield management of the forage wildlife, and other resources.[92]

Forest Service publications noted that the area contained a variety of scenic features. These were:

> Wheeler Peak, 13,063 feet high, with a permanent ice field; Baker and Snake Creeks; the upper parts of Lehman Creek; and Big Wash Canyon. Within the area are some of the world's largest mountain mahogany trees, Stella, Baker, and Johnson Lakes, two natural rock arches, and a stand of extremely ancient bristlecone pine.

Forest Service officials were careful to point out that multiple-use forestry, including grazing, hunting, fishing, and mining, would continue in the scenic area. Resorts, cabin camps, summer homes, and commercial enterprises, however, would be permitted only in locations adjacent to the scenic area.[93]

Plans for the initial phase of the new recreation development program called for a two-way road up Lehman Canyon to Stella Lake, camping and picnic facilities near the lake, and a trail to the glacieret on Wheeler Peak. Rustic signs would be installed directing tourists to important features in the area. New campgrounds would be constructed on lower Baker Creek to accommodate the growing number of tourists. Additional campgrounds were also planned for Snake Creek and Big Wash Canyon. The 1959 portion

---

92. Earlier in September 1955, Forest Supervisor L.A. Dremolski had recommended that a 4,200-acre Glacier Scenic Area be established on the east side of Wheeler Peak to include the ice field and cirque, three alpine lakes, and surrounding timber lands. Waite, "Proposed Great Basin National Park," Part II, pp. 702-03.

93. U.S. Department of Agriculture, Forest Service, Intermountain Region, *Humboldt National Forest*, 1959. On January 6, 1941, Forest Ranger S.D. Warner measured a mahogany tree in Lehman Creek campground which Forest Service research indicated was the world's largest mountain mahogany on record. Its circumference at one-half foot above ground was 41 inches. The tree had a crown spread of 67 feet and a height of 24 feet.

of the program included trail improvement work and recreation planning on lower Baker Creek and a survey of the Lehman Creek road preparatory to new construction in 1960.[94]

The implementation of Forest Service plans for the Wheeler Peak Scenic Area took nearly a decade to complete. A Forest Service brochure printed in 1964 indicated that some progress had been made in improving campground facilities in the scenic area. The upper Lehman Creek campground had 33 family camping sites in addition to picnic facilities, while the Lehman Creek trailer camp had 12 family camping units. The Baker Creek campground had 17 family camping units and additional picnic facilities, while the Snake Creek campground had 8 relatively undeveloped sites without drinking water.[95]

In 1965 the Forest Service prepared an accomplishment report regarding progress on the development of the Wheeler Peak Scenic Area. The report described the planned and completed developments to date:

	Planned	Accomplished
Public Camp		
Family Units	120	61
House Trailer Units	12	12
Planned Expansion	15	–
Stella Lake	37	–
Roads		
Lehman Creek to Stella Lake	13.75 mi.	6.95 mi.
Section of road under Current Contract	2.86 mi.	2.86 mi.
Final Road Construction Contract – Summer 1965.	3.94 mi.	–
Stella Lake Campground Road Construction – Summer 1965.	1.20 mi.	–
Bituminous-surfaced Campground Roads	4.59 mi.	4.59 mi.
Trails		
Improve for foot & horse travel	20.00 mi.	12.00 mi.

94. *Ely Daily Times*, February 13, 1959, *Nevada State Journal*, February 15, 1959, and *Reno Evening Gazette*, April 29, 1959. On August 31, 1959, a helicopter crashed near the top of Wheeler Peak as Forest Service officials were making a reconnaissance looking toward possible construction of the scenic road up Lehman Creek Canyon to Stella Lake. *Ely Daily Times*, September 1, 1959.

95. U.S. Department of Agriculture, Forest Service, Intermountain Region, *National Forest Recreation in Nevada*, [1964], n.p.

New Construction:		
Stella Lake to Snowfield	3.5 mi.	3.5 mi.
Pine Grove Nature Trail	3.5 mi.	–
Icefield-Baker Lake Trail	12.0 mi.	–
Signs		
Informational & Directional Signs	26 each	18
Structures		
Informational Shelter	1 each	0 [96]

Pressure from conservation and preservation groups caused the Forest Service to halt construction of the road to Stella Lake in August 1965. These organizations opposed building of the road to the lake and Forest Service plans to lay out campgrounds near its shores because of the potential harm to the fragile ecology of the area. After further study the Forest Service announced plans to end the road at a new campground one mile below the lake.

By the summer of 1966 Forest Service planning and development of the Wheeler Peak Scenic Area had created considerable public discussion. Thus, the Forest Service felt compelled to explain its rationale for the management of the area. Accordingly, the bureau issued a lengthy statement entitled "Management of the Wheeler Peak Scenic Area" in June 1966. In the document the bureau described its development program for the area:

> Recreation Facilities
>
> There are presently public camping facilities in the area totaling 73 units. The five-year development plan calls for an additional 120 units and two primitive back country camps, the latter accessible only by foot trail.
>
> A total of 15 miles of new hiking trails have been constructed or are under contract. Future plans call for completing this trail system in the Lehman and Baker Creek drainages.
>
> Interpretation for the Visiting Public
>
> The Wheeler Peak Scenic Area offers an exceptional opportunity to protect and interpret the history, geology, and ecology of a typical example of Great Basin country. Five life zones are represented in the area and plans call for interpreting these zones at points along the Lehman Creek road.
>
> There are other unusual features that will be preserved and explained to the public – the ancient Bristlecone pine stand which will be accessible only by foot trail, the glacial features of Wheeler Peak, native flora and fauna, the world's largest mountain mahogany tree, and many other features of interest.
>
> A modest visitor center is planned in conjunction with a new ranger station to be located at Baker, Nevada, which will provide information to the visitor before he enters the area.

---

96. 1965 Accomplishment Report, Wheeler Peak Scenic Area, Humboldt National Forest, Forest Service, U.S. Department of Agriculture, Prepared by Wilford L. Hansen, Forest Supervisor, Baring Bill H.R. 6122, Great Basin Park, Box 26, Walter S. Baring Papers, Nevada Historical Society, Reno.

Wildlife Resource Development

The area is an attraction to sportsmen, providing big and small game hunting and fishing opportunities. Each year a sizeable harvest of deer, blue grouse, and sage grouse is taken from these National Forest lands. In a region largely desert, several small but important fishing streams are found in the Snake Mountains. A positive program of developing waters for greater production of trout is entirely feasible through stream habitat improvements.

Access to the Area by Roads

A road system is being developed to make part of the area available to the general public. The two primary access routes are in the Lehman and Snake Creek drainages. These roads will permit opportunities for recreational facilities to accommodate and confine public use as well as afford fine vistas of the desert range country below.

The Lehman Creek Road

This road originates at the Lehman Creek campground in the foothills at an elevation of 8,200 feet. It then climbs generally to the northwest, largely outside the Lehman Creek drainage, for a distance of 9.8 miles. At the 9,932 foot level, the road swings back in to the Lehman Creek basin and extends 2-1/2 miles to a planned campground at a 9,950 foot elevation where it terminates. The road ends about one mile by trail from Stella Lake. From the road end, a foot trail begins to the ice field under Wheeler Peak, a distance of four miles. At a future date, a trail may be built to a grove of ancient Bristlecone pine – one of several in the Snake Range – located about 2-1/2 miles by trail from the campground.

The total length of the road is 12.3 miles, 9.8 of which are graded but not paved. The last 1-1/2 miles of main road and 1.1 miles of campground road were placed under contract November 24, 1965. The contractor started work March 24 of this year. It is planned to issue a contract for paving the entire length in F.Y. 1967.

Detailed field studies were made of several possible routes into the Lehman Creek basin. The one selected was carefully designed and adjusted to minimize disturbance to soil and vegetation. Back slopes and fill sections have been revegetated as work progressed. The actual design of the road and construction to date has been one of most carefully considered projects of this type in the Intermountain Region. Every effort has been made to lessen the impact of construction on the area's resource values, both material and intangible. There are no Bristlecone pine trees in the vicinity of the road.

Scientific Values to be Protected

Although the Wheeler Peak Scenic Area is not a unit of the Wilderness Preservation System under the Act of 1964, about 80% of it will remain inaccessible except by foot and horse. This includes the famous Bristlecone pines, the ice field in the glacial cirque, and Stella, Teresa, Johnson and Baker Lakes. A carefully designed campground at the end of the road will be the starting point for hikers to explore the scenic and other attractions which lie above and beyond, . . . this campground will be on relatively flat bottom land

in an open spruce aspen grove. It is designed with a hundred or more foot space between units for those who want a quality camping experience. Facilities for mass type or group use are not planned or contemplated.[97]

After five years of construction the twelve-mile road, which at first was commonly called Asilo Verde Drive but later came to be known as the Wheeler Peak Scenic Road, was completed in July 1966. The road, which offered long-range views of Snake Valley, terminated at the proposed 37-unit Wheeler Peak campground about one mile from Stella Lake. Trails led from the campground to Teresa and Brown lakes and a bristlecone pine grove.

The road, which was graded and graveled to high standard, was constructed by the La Barge Construction Company, a Wyoming-based firm. The grade for most of the road was about eight percent, but in several places it had a grade of as much as fifteen percent. To save what was considered a record-sized limber pine, the road was resurveyed to swing around the tree. In another spot the road was redesigned to conserve a spruce fifteen feet in circumference.[98]

In September 1966 the Forest Service let a $100,000-contract to the La Barge Construction Company for reconstruction of the 3.6-mile Baker Creek Road to an all-weather, high standard gravel surface. The contract also included work on 3.3 miles of interior campground roads for a new campground facility in the Baker Creek Narrows area to provide room for 120 camping and picnic sites. While this Greycliffs Campground was laid out with roads and spurs, budget cutbacks would prevent its completion and full development.[99]

The Forest Service continued to push its development program for the Wheeler Peak Scenic Area to accommodate the nearly 100,000 tourists who were visiting the area annually by 1967.[100] In January of that year the bureau announced that 5.5 miles of trails had been completed between the proposed Wheeler Peak campground, providing connection with Stella and Teresa lakes and the nearby bristlecone pine trees area and improved access to the Wheeler Peak ice field. By July 1 the reconstructed Baker Creek Road would be competed, providing improved access to the Baker Creek Trail, a seven-mile trail up Baker Creek to Baker Lake which was being relocated and rehabilitated.

Among other things the Forest Service planned to have "a full-time professional visitor interpretive service man in the area" during the summer of 1967. Improved signing, three scenic overlooks with interpretive media along the Wheeler Peak Scenic Road, modest displays, visitor guidance facilities, and a possible short publication on the area were being planned.

---

97. "Management of the Wheeler Peak Scenic Area," June 1966, Nevada – Mt. Wheeler, Incidents, 1961-1969, Nevada Outdoor Recreation Association Papers, Nevada Historical Society, Reno.

98. *Ely Daily Times*, July 1966, 1630 – Written Information, 2 – Out Service, Newspaper Clippings, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9533).

99. *Ely Daily Times*, September 23, 1966, and *Salt Lake Tribune*, July 14, 1967. The National Park Service granted a special use permit to the Forest Service for an area approximately 80 feet by 312 feet near the southeast corner of Lehman Caves National Monument for reconstruction of the Baker Creek Road.

100. For an example of the type of publicity being given to the Wheeler Peak Scenic Area see Betty Orr, "Baker's Dozens," *Nevada*, XXX (Fall 1970), 18, 20, 22, 24-25, 42.

When development of the scenic area was completed, the Forest Service estimated that 20 percent of the area would be accessible to the motoring public, while 80 percent would be open to horseback or foot travel "on developed trails or cross country."[101]

Early in 1968 it was announced that the Lehman Caves National Monument visitor center would be enlarged to accommodate Forest Service exhibits, interpretive services, and offices.[102] The roads and spurs, five double-unit masonry toilets, and a water system for seven camping sites had been completed in the Wheeler Peak campground. Thirty more sites in the campground, each with a fire ring, charcoal grill, concrete slab, table, and benches, were slated for construction. Budget cutbacks, however, would prevent completion of the campground for several years.[103]

A survey of recreation opportunities on the Snake Division during 1967-68 indicated that there were five public campgrounds and ten scenic features that were accessible by trail. The campgrounds were:

Wheeler Peak – 7 family units
Lehman Creek – 24 family units, 2 group units
Lehman Creek Trailer Camp – 11 family units
Baker Creek – 17 family units
Snake Creek – 8 family units, several undeveloped sites

The ten scenic features were

Bristlecone Forest – Located two miles up the Ice Field Trail

Ice Field – 3-1/2 miles on Ice Field Trail from Wheeler Peak Campground

Wheeler Peak – Reached by 5-mile Wheeler Peak Trail

Stella-Teresa Lakes – Reached from Wheeler Peak Campground via 3-mile Solace Loop Trail

Bristlecone Pine (Mount Washington) – Reached by 4-wheel drive vehicles from Spring Valley and by horses from Snake Valley

Baker Lake – Reached by 7-mile trail from Baker Creek Road

Johnson Lake – Reached by jeep and hiking, 5 miles above Snake Creek Campground

Baker Creek Cave System – Located easily and accessible from Baker Creek Road

---

101. *Nevada Appeal*, January 29, 1967. In 1968 a fence was constructed along the Baker Creek Road to prevent the drift of cattle to the Baker Creek Campground.

102. The jointly-operated Lehman Caves National Monument Visitor Center was opened in 1970. For data on Forest Service operations in the facility see Lehman Caves Visitor Center, Operation and Maintenance Plan, Approved September 30, 1982, Basic Data, Great Basin National Park General Management Planning Team Files, Denver Service Center.

103. Unidentified newspaper clipping, 1630 – Written Information, Newspaper Clipping, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9533), and Correspondence in Development Sites in Public Sector, Wheeler Peak Campground, Basic Data, Great Basin National Park General Management Planning Team Files, Denver Service Center.

Snake Creek Cave System – Located along Snake Creek Road

Lexington Arch – Located at end of Lexington Creek Road and reached by automobile and hiking[104]

During the spring and summer of 1968 the Wheeler Peak Scenic Road was paved under a contract let to the Schocker Construction Company of Murry, Utah, for nearly $500,000. The contract included paving of the roads and spurs in the Lehman Creek campground, Lehman Creek trailer camp, and Wheeler Peak campground.[105]

During 1968 the Forest Service prepared an interpretive prospectus for the Wheeler Peak Scenic Area. The purpose of the prospectus was to analyze interpretive needs in the area and recommend themes to be interpreted for the public. The prospectus made recommendations as to the facilities and media required to interpret appropriately the topics, sites, and issues. The prospectus divided the scenic area into eight interpretive units, each having its own unique story to tell. These units were:

1. Lehman Creek
2. Wheeler Peak
3. Baker Creek
4. Snake Creek
5. Big Wash
6. Lexington Creek
7. Mount Washington and Lincoln Peak
8. Big Springs Wash and Murphy Wash[106]

Although the trail system development in the Wheeler Peak Scenic Area was largely completed by the early 1970s, it did not achieve national recognition until 1979. On March 6 of that year the Wheeler Peak Trail System was designated as a national recreation trail. The trail system was comprised of a continuous loop trail and three spur trails known as the Wheeler Peak Summit Trail, Stella Lake Horse Trail, and Bristlecone-Icefield Trail. The Solace Loop Trail began and ended at the Wheeler Peak campground and formed a three-mile loop passing both Stella and Teresa lakes. The three spur trails added another seven miles for a total of ten miles of trail in the system. The recreational uses of the trail system consisted of day hiking, horseback riding, backpacking, camping, rock climbing, botanical walks, scenic photography, geological study, hunting, and bird watching. Off-road vehicles, except snowmobiles, were prohibited. Visitor use of the national recreation trail exceeded 60,000 visitor days per year, the seasonal use of the trails extending primarily from July to September.[107]

---

104. "Reference Text For Preparation of Forest Recreation Maps and Information Brochures," 1967-68, Historical Files, USFS, Elko.

105. *Ely Daily Times*, January 3, 1968, and *Elko Independent*, January 12, 1968.

106. Wheeler Peak Scenic Area Interpretive Prospectus [1968], Basic Data, Great Basin National Park General Management Planning Team Files, Denver Service Center.

107. Wheeler Peak National Recreation Trail, Establishment Report, Approved March 6, 1979, Basic Data, Great Basin National Park General Management Planning Team Files, Denver Service Center.

U.S. FOREST SERVICE GRAZING MANAGEMENT POLICIES IN THE SOUTHERN SNAKE RANGE

Early grazing policy on Nevada National Forest range lands was governed by provisions in the aforementioned *Use Book*. The volume stated that the Forest Service would allow use of

> the forage crop of the reserves as fully as the proper care and protection of the forests and the water supply permit. Every effort will be made to assist the stock owners to a satisfactory distribution of stock on the range in order to secure greater harmony among citizens, to reduce the waste of forage by tramping in unnecessary movement of stock, and to obtain a more permanent, judicious, and profitable use of the range.
>
> On the other hand, the Forest Service expects the full and earnest co-operation of the stock owners to carry out the regulations.[108]

According to one historical account of the Forest Service, there was a six-fold purpose to the grazing regulations. These were: (1) to prevent injury to timber stands and avoid interference with reforestation; (2) to protect watersheds against damage from livestock; (3) to accomplish complete utilization of the forage crop; (4) to prevent range monopoly; (5) to avoid unfair competition in the use of the range; and (6) to accomplish a more equitable distribution of grazing privileges.[109]

The initial reaction of the livestock interests toward Forest Service grazing policies was opposition and fear of regulation. This attitude, however, gradually changed to cooperation as the results of conservation management were measured. This change of attitude was described in 1933 by John Yelland, a sheep rancher who had arrived in White Pine County in 1881. He observed:

> About 1895 to 1900 sheep increased generously. The feed before this was gradually decreasing. Races was frequent to get to certain springs and fresh feed, only to find some other one there only a dust pile left. The mountain range was already worse. Lambs came down from the mountains weighing from 30 to 40 lbs. Lots of them died on the range. About 1907 we had heard about Forest Reserve and the most terrible things they would do to the users of the range. Nearly all believed it was our finish. Some brave souls, however, thought we could not get anything worse than we had been going through and counseled moderation and "try-it-out." I shall not forget the first men we had here as Forest Supervisors and Rangers. They surely had a job to do and overcome. However, range users got to see and know it was the only way out reasonably, as I saw it. It has proved alright after being started about 1909 and the major of the users got to know the rules and regulations. Our lambs went from 50 lbs or so to 65, 70 & 80 lbs each. It showed us that conservation of the range was our only salvation. The driest years from 1923 to the present was better than the best years before the Forest Service came in existence. It is my experience the range is gradually improving. . . . In regard my ideas

---

108. Quoted in Pinchot, *Breaking New Ground*, p. 269. for further information on the history of Forest Service grazing policies, see Will C. Barnes, *Western Grazing Grounds and Forest Ranges* (New York, Arno Press, 1979), and William D. Rowley, *U.S. Forest Service Grazing and Rangelands: A History* (College Station, Texas A&M University Press, 1985).

109. U.S. Department of Agriculture, Forest Service, *Rise of Multiple-Use Management in the Intermountain West*, p. 41.

> of the matter and control of the sheep ranges. I would say that I would like to see the balance of the range in the control of the Forest Service. As Forest supervision is the only reasonable and feasible way to handle these fast-dwindling ranges with the feed being cleaned out by the roots and branch. The Forest supervision of the forest is the only single thing we have got today this minute to hang on to. Lots of talk but this is our only salvation.[110]

Within several years of the establishment of Nevada National Forest, virtually all of the Snake Division was divided into grazing allotments. Local ranchers were permitted to graze stated numbers of cattle and/or sheep in specified areas, provided they cooperated with Forest Service policies and regulations and paid assigned grazing permit fees. Among the earliest Forest Service regulations were those reducing the number of animals allowed to graze, salting plans, and cattle herding and sheep trailing guidelines.[111]

Four of the earliest allotments to be established on the Snake Division were the Big Wash, Strawberry, Swallow, and Shingle Creek units. These four allotments were placed in operation between 1909 and 1912. Established in 1909 or 1910 the boundaries of the Big Wash Allotment were later described by Forest Ranger Sylvan D. Warner:

> Commencing at the forest boundary on the south ridge of Lexington Canyon, thence in a westerly direction to the forks in Lexington Canyon. Here the line crosses at the head of the fenced private land and the line runs north to the north ridge of Lexington Canyon at this point. From here, the line continues in a westerly direction along the main divide between Lexington and Big Wash Canyons to the high point near the forks of Big Wash. From here, the line continues in a southwesterly direction on the main divide around the south fork of Big Wash. Thence in a westerly or northwesterly direction toward Lincoln Peak on the main divide between Garrison Big Wash (North Fork) and Decathon and Murphy Wash Canyons. From Lincoln Peak, the line continues in a northerly direction to Mt. Washington and from here by way of the main divide between Big Wash (North Fork) and Snake Creek. Thence it runs in an easterly direction along this main divide to a point a little west of the Shoshone trail where it crosses this divide. From this point the line drops down into Big Wash Canyon around a basin which is called Deerhead Basin. The line continues on around the peak up to the divide between Snake Creek and Big Wash Canyons and thence in an easterly direction along this divide to the forest boundary.

For the next three decades the Big Wash Allotment was used exclusively by the owners of the Big Wash ranches. While the carrying capacity of this allotment in 1938 was estimated to be 500 sheep and 20 cattle, apparently the allotment permittees never grazed more than a few cattle and some 200 to 300 sheep. The small number of animals that were grazed on this allotment was attributed to the fact that it was "perhaps the most difficultly grazed of the entire Baker Ranger District." In 1939 Forest Ranger Warner described the grazing conditions on this allotment:

> Garrison Big Wash Canyon is noted for its rough terrain and practically impassable, boxed canyons. The entire north fork which embraces quite a drainage is devoid of watering holes with but two or three seeps or small seeps,

---

110. Yelland to Olsen, February 8, 1933, Historical Files, USFS, Elko. III, Studies – Uinta (Nevada), Historical Information, Gary E. Larson, Forest Supervisor, June 9, 1941, Historical Files, USFS, Elko.

111. I, Studies – Uinta (Nevada), Historical Information, Gary E. Larson, Forest Supervisor, June 9, 1941, Historical Files, USFS, Elko.

but at which no permanent water development has been maintained. The south fork affords quite a little favorable vegetation but as a whole, this allotment is difficult to graze, first by nature of the terrain and second, by remoteness from available water. The area below the forks of Big Wash Canyon from the Snake Creek divide to the Lexington divide is of little summer use. It is severe, dry granitic soil and it is felt that little summer grazing can result from the use of this area.[112]

In 1910 the Strawberry Allotment, consisting of the entire drainage of Lehman Creek, all of Strawberry Canyon except Windy Canyon, and the small drainages on the east face of the Snake Division between Lehman and Strawberry creeks, was established and awarded to G.S. Robison & Sons. The boundaries of the allotment were described in 1939:

> Commencing at the forest boundary near the Potter homestead, the allotment boundary runs in a westerly direction along the main divide between Strawberry and Weaver Creeks to a peak about one-quarter mile west of the Osceola ditch tunnel. From this point it runs in a southerly direction to the bluffs at the mouth of Windy Canyon, thence in a westerly direction to the summit between Willard Creek and Strawberry Creek. Thence north along the main divide between Spring Valley and Snake Valley to Mt. Wheeler. Thence east along the main divide between Lehman and Baker Creeks to the forest boundary just south of the main road to Lehman Caves.

This well-watered allotment was considered to be "the most choice allotment in the Baker Ranger District." Some 3,400 sheep were grazed on the allotment in 1910, and an average of 3,200 sheep used the allotment through 1922. Overgrazing led to a reduction in permitted numbers of sheep to 2,200 in 1923 and about 1,100 during the 1930s.[113]

The Swallow Allotment was established in 1909-10, and the Swallow Brothers were granted a permit to graze 250 cattle and 2,800 ewes. The boundaries of this allotment were described in 1939:

> Commencing at the forest boundary about one-half mile south of the west jog in the forest boundary on the Spring Valley side near Raise[d] Spring, thence east to a little knoll just north of Hub Basin Mine, thence in an easterly direction along the water trail to the main divide between Spring Valley and Snake Valley. From here, the line runs in a southerly direction along the main divide, over Mt. Washington to Lincoln Peak. From here the line runs in a southeasterly direction along the divide between Big Wash and upper Johns Hollow into Decathon Canyon to the head of the south fork of Big Wash, thence along the divide between South Fork and Decathon Canyon to Granite Peak (the Y).
>
> From this point, the line goes south along the main divide between Decathon Canyon and Cedar Cabin, dropping down to the Draw which heads at the forks (horse corral). From this point, the line cuts in a southeasterly direction towards Big Spring, Nevada and cuts across the heads of several draws draining into Big Springs Wash.

---

112. Range Allotment Management Plan, Nevada National Forest, Big Wash Allotment – S&G, August 5, 1939, Sylvan D. Warner, Forest Ranger, Historical Files, USFS, Ely. See Appendix S for a brief history of the Big Wash Allotment to 1939.

113. Range Allotment Management Plan, Nevada National Forest, Strawberry Allotment – S&G, July 20, 1939, Sylvan D. Warner, Forest Ranger, Historical Files, USFS, Ely. See Appendix T for a brief history of the Strawberry Allotment to 1939.

> This allotment comprises all the drainage of Decathon Canyon, all of lower Big Springs Wash below the Forks, all of Johns Hollow and Murphy Wash, all the west side of the Snake Division from the Hub Basin drainage, Shingle Creek, Williams Creek, Dry Canyon, Box Canyon, Hole Canyon, Lincoln Canyon, Water Canyon and many other unnamed drainages to the south.

This allotment was large in terms of surface acres. However, the nature of the range, remoteness from water sources in many sections, and general inaccessibility of the terrain reduced the permitted carrying capacity of the allotment. By 1919 the number of stock permitted for grazing on the allotment was reduced to 1,600 sheep and 200 cattle. During the late 1930s the permitted numbers were reduced further to some 1,100-1,200 sheep and 200 cattle.[114]

In 1912 the Shingle Creek Allotment was established, and the Marriott Brothers were permitted to graze nearly 3,000 sheep within its boundaries. In 1939 the boundaries of the allotment were described:

> Commencing at the forest boundary at Willard Creek, thence in an easterly direction to the divide between Strawberry and Willard Creeks, thence in a southerly direction along the main divide between Snake Valley and Spring Valley, over Baldy Peak, Mt. Wheeler, Baker Peak to a point at the head of the drainage just north of the Hub Basin Mine. From this point on the main divide, the line runs westerly along the water trail to the little knoll just north of Hub Basin Mine, thence west to the forest boundary about one-half mile south to the west jog in the forest on the Spring Valley side near Raise[d] Spring.

The entire area of the allotment was available for grazing except for those areas above timber line. The allotment was well-watered but very rough and rocky – perhaps the most rocky allotment on the Snake Division.

The allotment was taken over by the Robison Brothers in 1920. Until 1935 they grazed some 2,800 sheep on the allotment. In that year the permitted number of sheep was reduced to 2,550, and in 1937 the allotment was divided into two segments – Weaver and Shingle creeks.[115]

Grazing and forage conditions on the Snake Division were investigated by Inspector of Grazing Ernest Winkler during September 1916. He observed that the division had "a high rugged summit extending north and south, sloping east and west of Mount Wheeler, Mount Washington, and Lincoln Peaks." The north and northeast portions of the division were "well watered, Snake and Baker Creeks being the principal streams having their source at the base of the peaks mentioned." The streams extended into Snake Valley where they were used for irrigation purposes. The "less important streams" were used "to irrigate small narrow strips of land located along the creek bottoms."

The cover on the Snake Division range consisted of grasses, balsamorrhiza, snowberry, purshia, and lupine, the latter representing "the most important sheep forage perhaps on

---

114. Range Allotment Management Plan, Nevada National Forest, Swallow Allotment – S&G, August 5, 1939, Sylvan D. Warner, Forest Ranger, Historical Files, USFS, Ely. See Appendix U for a brief history of the Swallow Allotment to 1939.

115. Range Allotment Management Plan, Nevada National Forest, Shingle Creek Allotment – S&G, August 5, 1939, Sylvan D. Warner, Forest Ranger, Historical Files, USFS, Ely. See Appendix V for a brief history of the Shingle Creek Allotment to 1939.

the greater portion of the division." Winkler observed that the division had been overstocked with sheep in earlier years. "Outfits" had dropped out, however, "so that if a careful study of distribution is made it will not require as great a reduction to secure satisfactory results as is the case on the Schell Creek Division." A "reduction of at least 10%," however, might "be necessary to relieve the situation" on the division unless more outfits forfeited by non-use. Winkler observed further:

> The cattle allotments on this division will provide for the stock and secure satisfactory improvement. Careful watch, however, should be kept of the Baker Creek Division with a view to seeing to it that the stock are not increased to an extent that will result in injury. As a rule, it is noted that the tendency of the cattle on this division, as well as the balance of the Forest, is not to drift onto the Forest but rather to drift off, so that according to the rangers there is no serious difficulty as to excess numbers. The stock are accustomed to running in the flats below and the rough quartzite rock of the mountains soon make them tenderfooted and they drift back to the flats. According to the rangers it is usually necessary to keep moving the stock onto the Forest during the summer.
>
> On the Snake Creek Division there is a considerable portion of the range now assigned to cattle that I doubt can be used to any advantage, due to its topography and rugged surface. This question should be studied with a view to assigning the sheep to such portions of this range as can not be successfully used by cattle. This will aid, no doubt in offsetting reductions in the sheep for protection. If such provision for sheep can be developed that will likely relieve the sheep situation without injury to the cattle interests, it would then probably be advisable to defer the reduction one year in order to determine the results.
>
> The best forage found on this division is located at the head of Big Spring Wash Canyon on the west slope. Its condition is primarily due to lack of water and is a part of the Swallow allotment. According to Ranger thompson, this area is about three miles wide and six to eight miles long. The upper portion of it has a splendid cover of good forage. This is another section of the country where the question of careful study of water possibilities is important. The Cedar Cabin Spring should be developed with a view of securing as much as possible of this range, and in addition to this the ranger should encourage the sheepmen to drift their sheep onto this range as much as possible during storm periods when the sheep can get along without water.

Winkler was surprised when comparing "the condition of the range with the condition of the stock." The cattle "were in fair condition as a whole and a good percentage of the dry stuff was in good condition to fat." The sheep were "principally ewes but were in good condition." If normal conditions prevailed, they would "be able to withstand the winter without difficulty."

The tendency was "to graze small bands of sheep from 900 to 1,200 head." Sheep were handled by a "bedding out system," each herder moving his own camp with a foreman for each two herds. The foreman furnished supplies for the herder, hunted for lost sheep, and performed other duties. The herders and foremen were all Basques. Lambing was done under the drop system.

Cattle were generally driven on to forest lands and "allowed to go as they please." An exception to this rule occurred when they drifted off forest lands, the ranchers then driving them back on to their allotments. Efforts were made to keep cattle off the sheep allotments. Sheep and cattle were usually counted by forest rangers when they entered

the forest. Winkler complimented the forest supervisor and rangers "for maintaining thoroughly posted lines between different classes of stock; it is the most complete I have yet seen."

Winkler observed that the stockmen were objecting to a Forest Service rule that they provide salt for their cattle. He observed that they "take the attitude that their fathers never salted their cattle and they do not see any necessity for changing the rule since they got along all right." He had seen no salt on the Snake Division, and thus commented:

> I feel confident from what I saw that there is need for greater activity in the matter of salting and I suggest that the ranger adopt the method of notifying the permittee by letter of the amount of salt that he desires placed on the range, where it should be placed, and the date that he will be expected to distribute it. This will then enable the ranger to be on the ground and see to it that the salt is placed on the ground where desired. The stockmen state that they have difficulty in securing salt, but so long as we accept such excuses the range will be poorly salted. In this connection it might also be advisable for the ranger to bear in mind that through the proper distribution of salt he will be able to secure a better distribution of the stock.

According to Winkler, a "system of grazing seasons" had been adopted that provided "for three months use of the range by sheep." This arrangement was fully justified "for the reason that one spring it may be possible for them to remain off the Forest until late owing to climatic conditions, while other years it may be very dry and absolutely necessary to go to the higher country earlier, and consequently come off the Forest earlier in the fall or vice-versa."

Only one livestock association had been recognized on Nevada National Forest by 1916. It was doubtful whether other organizations could "be developed inasmuch as the cattle business" was "more or less a one or two man proposition due to the isolated range conditions." The principal task facing officials of the forest was to study "conditions on the ground with a view of securing a better distribution of the stock and a more uniform utilization of the range."[116]

During the years 1909-19 the U.S. Forest Service took steps to improve the stock grazing prospects of the Snake Division. In 1912, for instance, "stock watering places" were inventoried, and a working plan development of springs on the range was prepared. The plan stated the need for such development:

> Stockmen, in this vicinity, long ago realized the necessity and advantage of developing stock watering places on the summer range. This became necessary on account of the long distances stock were obligated to trail to water, and it afforded new range areas, which could not be utilized before on account of an inadequate supply of water.

The plan also described the springs that had been developed by stockmen on the division:

> During the last seventeen years in Murphy Canyon and Big Spring Wash, located in Township 11 N., Ranges 68 and 69 E. Swallow Brothers have developed and troughed eleven springs. These troughs are protected from

116. Memorandum for the District Forester, Ernest Winkler, Inspector of Grazing, October 28, 1916, 1440 – Inspection, Year 1916, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

fouling by guard rails close to one side so that stock can drink from one side only.

The approximate cost for developing and troughing each spring for material and labor is $100.00. By this development Swallow Brothers were enabled to utilize approximately 10,000 acres of good range for their sheep and cattle.[117]

The Forest Service continued to monitor grazing issues and take steps to improve forage conditions on the Snake Division during World War I. During 1915 some 200 cattle died as the result of eating lupine, and forestry officials took measures to eradicate that plant. Under the direction of the forest ranger the ranchers with permits to graze cattle on the division "deferred the grazing of this area practically every year until after the grasses matured and went to seed," thus improving range conditions. An area of some 3,000 acres in Lexington Canyon, for instance, had "been grazed lightly by a few cattle during the early part of the season, while water was obtainable, and later, after the September storms," it was "fed off by sheep." Thus, a marked improvement in range conditions had been "secured" due "to the deferred use of the range after the seed of the various forage plants had ripened."

While the Forest Service did not undertake artificial range reseeding efforts during the early years because of the limited amount of rainfall, some of the permittees conducted their own experiments. P.M. Baker, owner of the Baker Ranch until 1914, was reported as having "experimented by sowing grass seed promiscuously from horseback over certain portions" of the division.[118]

Despite Forest Service concern for range improvements, little systematic study of grazing conditions was conducted on the Nevada National Forest and its divisions during the early years. In 1917, for instance, forestry officials admitted that little "grazing reconnaissance work had been done on the forest beyond "a knowledge of the approximate carrying capacity of the various sheep and cattle allotments on the different divisions and an attempt at making a collection of forage plants with data relative to their seeding, habits of growth and forage value." In that year, however, the first plans to govern methods of handling stock on the forest lands were adopted.[119]

The plans consisted of a "bedding-out system of sheep handling" and a "method of controlling the grazing of cattle by distribution of salt at selected spots." The sheep allotments were divided "to allow of deferred and rotation grazing," thus allowing at least one-fourth of each allotment to go to seed each year. Springs and water storage facilities

---

117. "Nevada National Forest, Working Plan, 1912, Methods of Developing Stock Watering Placing on National Forest," Historical Files, USFS, Ely. Later during 1918 water facilities were improved for cattle in Big Wash Canyon. M.H. Osborne, the permittee, hauled the metal or hewn log troughs provided by the Forest Service and installed them at Maple Spring, Birch Spring, and a small seep in North Fork. While this development would not materially increase the carrying capacity of the allotment, it would "allow the animals to feed the range without traveling over the steep, rough hills to water."

118. "Grazing Chapter – Supervisor's Annual Working Plan, 1915, Nevada National Forest," December 1, 1915, and "Grazing Chapter – Supervisor's Annual Working Plan, 1917, Nevada National Forest," November 10, 1917, Historical Files, USFS, Ely.

119. "Grazing Chapter – Supervisor's Annual Working Plan, 1917, Nevada National Forest," November 10, 1917, Historical Files, USFS, Ely.

were further developed so that the sheep did not have to traverse their entire allotments in search of water.[120]

To improve the grazing areas for cattle on the Snake Division plans were adopted for "proper distribution of the cattle by salting and a limited amount of herding." Implementation of the plans allowed nearly one-half "of the cattle territory" to go to seed each year. On March 20, 1918, Forest Ranger George C. Larson outlined the salting plan for the Snake Division, which provided that the thirteen permittees would put out 4,818 pounds of salt for their 803 cattle and horses. He stated:

> The permittees of each division have been designated by letters of the alphabet and in addition is given a number corresponding to the date salt is put out. Thus a ground to be used May 1 is Numbered 1; one where salt is placed June 15 is numbered 2 and the places to be used on Aug 15 are numbered 3.
>
> It may appear . . . that the number of salt grounds are excessive but I hold that it is better to place 50 lbs of salt in one place and have 25 cattle trail to it than to place 200 lbs and have 100 cattle trail in. . . . It will be noted that nearly all of the salt is to be put out on the same dates. It is not the plan to follow this strictly but to have the permittees ready at about this date to put out salt. Then if the ranger can shape his work so as to be present with some of the permittees at the actual placing of the salt he will notify them accordingly in sufficient time to for them to make their preparations. The ranger will not be able to be with all the permittees when salt is put out but it is intended to show the salt grounds to them either at the time the posts are placed or later and to so shape the work as to accompany each permittee at one of the saltings or more.
>
> It is intended that 6 pounds of salt shall be used during the season but as many of the cattle are taken off in August or September this amount may not be necessary. It is at least twice the amount formerly used and will no doubt seem ruinous to some of the permittees with antedated ideas. A close check will be kept of the salt put out and if it is found that there is a tendency to evade putting out salt it will be recommended that a penalty be imposed.[121]

The following year forestry officials fenced in a 30- by 45-foot plot of ground along Strawberry Creek for the purpose "of studying plant growth when not disturbed by grazing." If funds and labor were available fourteen more plots throughout the forest were planned for 1920. It was "believed" that the enclosures would "be valuable for comparative study to determine whether or not the range is being properly grazed."[122]

Although grazing on the Snake Division had been managed under the allotment system for more than ten years, the Forest Service still had not conducted an "intensive grazing reconnaissance" of Nevada National Forest by 1920. The need for such a survey was urged by Forest Supervisor Alexander McQueen on December 3, 1920:

---

120. *Ibid.*, and George C. Larson, Forest Ranger to Forest Supervisor, Ely, Nevada, (and attachments), March 20, 1918, Historical Files, USFS, Ely.

121. George C. Larson, Forest Ranger to Forest Supervisor, Ely, Nevada, March 20, 1918, Historical Files, USFS, Ely. The details of the salting plan for each permittee may be seen in Appendix W.

122. "Grazing Chart – Supervisor's Annual Working Plan, 1919, Nevada National Forest," December 12, 1919, Alexander McQueen, Forest Supervisor, Historical Files, USFS, Ely.

> There are a number of reasons why a complete grazing reconnaissance is desirable and very much needed on the Nevada Forest. The history of the administration has been that the average length of time that a ranger stays on a district is less than two years. The ranger districts are large and the number of experienced rangers, who are capable of making reliable maps that will show graphically the range conditions, is, and no doubt always will be, small. The range of forage supply for years of favorable and unfavorable weather conditions is great. Most of the Forest is unsurveyed and our maps are not accurate. The supply of water is limited and in many cases uncertain. The average annual precipitation is below ten inches and often the seed crop is killed by frost. Therefore when a portion of the range is depleted the process of reseeding is slow.

To remedy the need for information on the forest area, McQueen recommended:

> In so far as possible in connection with other work it is planned to have the rangers collect what forage data they can and show it on a base map. In connection with this it is hoped that we will be able to secure a Grazing Assistant to spend all his time in collecting data and with the information furnished by the rangers prepare grazing plans and a forage type map. The approximate cost will be about $2,500 per year, to cover salary and travel and it probably would take two or three years to complete the Forest.

According to McQueen, losses of livestock grazing on Nevada National Forest lands were minimal during 1920. Seven yearlings died of blackleg disease, and ten or twelve cattle and about sixty sheep died from plant poisoning. One poison area was the Robison brothers' sheep allotment on Strawberry Creek in the Snake Division, but forestry officials could not identify the plant causing the problem. Coyotes and lions killed some 25 cattle and 300 sheep in the entire forest.

During 1920 measures were taken to strictly enforce methods of handling stock to improve range and forage conditions. McQueen elaborated on these practices:

> Enforcement of the three-night bedding rule was made. On most sheep allotments a part of the range was deferred until seed matured. Practically every herd was furnished with a burro or horse with which to move the herder's bed each day. Where this was not done the sheep were bedded out and the herder returned to camp, leaving the sheep unattended during the night. The results secured were very satisfactory. In most cases the old custom of holding to an established system of camp and bed grounds was abandoned.
>
> Very satisfactory results were had by requiring the cattle permittees using range on the west side of Mount Moraja to herd their cattle. Better utilization of the allotment was had and with practically no drift on to the sheep allotments. Generally, better salting was secured than was had last season.
>
> It is planned to continue to enforce the three-night bedding rule and salting, by as close a check as possible, and to apply reduction in all cases of failure to comply with the instructions. Each permittee will be advised this month that positively no excuse for failure to place salt at the proper time and place will be accepted as ground for evading the reduction, with the suggestion that he provide salt in advance. Herding of cattle will be required where this is necessary to get proper distribution or to hold them on their allotted range. A portion of each sheep allotment will be closed until seed maturity and trespass

action taken in case posted areas are grazed before authorized by the Forest Officer in charge.

Water development projects in Nevada National Forest continued to be a matter of concern for forestry officials during 1920. On the Snake Division it was planned to develop Big Wash Spring and trail at a cost of $100 as soon as funds were available. This improvement would allow an increase of fifty cattle to graze in Big Wash. McQueen described the new Forest Service water development policies:

> Water development should be on a basis of the Service furnishing all material at Ely and the permittees doing the hauling and installing. During the past two years we have not received the cooperation in water development that we feel we should. The labor condition has no doubt been responsible for this to a great extent and then I think the delay in getting funds after the permittee has agreed to develop a certain spring has a tendency to cause him to lose enthusiasm. It seems to me a better plan would be to put all the funds available for water development into material without specifying any project and have it on hand; then when a permittee asks if there isn't something we can do toward developing a certain spring we can tell him there is and that we have the troughs and pipe on hand and if he wishes to take them out and install them he can have a specified amount and a limited time in which to do the work with the understanding that if the project is not completed in the prescribed time and manner that the material would be turned over to another permittee for use elsewhere.

As part of its range improvement program on the Snake Division the Forest Service made plans in 1920 for the installation of three drift fences on the Baker Creek drainage. The fences, totaling some three miles in extent, would be built on a cooperative basis with the Baker Livestock Company, the service to furnish the wire and staples at Ely and the company to deliver the materials and complete construction under ranger supervision. The fences were needed to prevent cattle from going to higher elevations "before the proper time for grazing in the spring."[123]

Grazing issues in Nevada National Forest were among the most important management questions to be faced by Forest Service officials throughout the 1920s. In November 1922 Forest Ranger Graham S. Quate reported that approximately 18,800 sheep (average grazing fees were approximately nine cents per head) were grazed on the forest lands that year. Of that total 235 head died of disease and 1,184 head were killed by coyotes and bobcats. During the year various practices were initiated to improve sheep handling. According to Quate, sheep "permittees appeared to make a more determined effort than usual to hold their herds on the lower areas as long as possible in order to permit the greater development of plant growth at the higher elevations." Other improvements in sheep handling practices on the Snake Division during 1922 included:

> Geo. S. Robison & Sons took a voluntary reduction of 200 head in their permitted number of sheep for 1922 agreeing to run not more than 2,200 and agreeing also to abandon the practice of following their ewe bands with a dry herd. They actually grazed only 1,963 head. Their lambs for 1922 were about 3 pounds heavier than in 1921, which increase we presume was due to the change in method of handling, and the reduction in numbers grazed.

---

123. "Grazing Chapter – Supervisor's Annual Working Plan, 1920, Nevada National Forest," Part Two – Protection and Development, December 3, 1920, Historical Files, USFS, Ely.

> Swallow Brothers adopted the practice this year of running a straight band of dry sheep on their Snake Range allotment. Apparently their allotment was more evenly utilized than heretofore and less damage to the range resulted.
>
> The Young Canyon, -Horse Heaven, -Bonita Basin allotment was utilized this year by a cooperative herd made up by G.W. Gonder, P.W. Baker, and Rudolph Merchun; having in it a total number of 704 head. On account of this herd containing 167 head belonging to G.W. Gonder which were run in place of 40 head of cattle from the Snake Creek cattle allotment, the herd was grazed in Snake Creek Canyon south of the old sawmill setting for a period of 14 days. This relieved the Horse Heaven-Bonita Basin country to a noticeable extent and this range was left in an improved condition at the end of this season.

Concerning cattle (average grazing fees were approximately fifty cents per head) handling improvements, Quate felt that cattle should not be permitted to graze upon the higher areas of the allotments at the opening of the season. Accordingly, plans were developed to construct a system of drift fences across the mouths of Lehman and Baker creeks and Pole, Can Young, and Snake Creek canyons.

To increase the capacity of the Big Wash Allotment the Forest Service completed the Shoshone Trail in 1922. The trail extended through the North Fork of Big Wash Canyon from the Chapman-Taylor Spring to the head of the canyon. The trail "made range available for about 20 head of cattle for six weeks time."[124]

During the summer of 1923 Inspector of Grazing D.A. Shoemaker rode the range in the Baker Creek drainage, observing range conditions and problems. His inspection tour extended to the head of Snake Creek and the low range from Baker Creek to Bingham Creek" and "the common use range between Lehman Creek and Strawberry and the Strawberry drainage." In his report of the inspection Shoemaker observed:

> The cattle range in the vicinity of Baker Creek is largely of very rough surface. The lower elevations are of a limestone formation, the upper of igneous. Even the more gentle slopes and bottoms of the ranges are in general strewn with rocks making travel over them difficult. The lower ranges are characterized by pinon and juniper types and sage brush-grass-weed types. The higher elevations are covered in many places by coniferous timber composed of limber pine, white fir with some Douglas fir and Englemann spruce and fox tail pine. These timber types are practically worthless from a forage standpoint. The rocky soil and dense shade together with the small amount of moisture results in very little undergrowth. This country is pretty well watered but it is difficult for cattle to travel a great distance due to the rocky surface.
>
> In general this range is in an overgrazed condition. However, it appeared that none of it is being overgrazed at the present time. The lower elevations and in general the bottoms of the canyons are being too heavily grazed but a number of the upper slopes had a pretty good percentage of the forage apparently seeding. In such a type of country we will, of course always have heavier grazing by cattle on the more gentle slopes than on the steeper, however, I am of the opinion that a considerable amount of the present localized overgrazing could be overcome with a correspondingly greater use of the less accessible portions through better salting methods and better herding of the

---

124. "Grazing Report, Nevada National Forest, Protection and Development," G.S. Quate, Forest Ranger, November 1922, Historical Files, USFS, Ely.

> cattle. Salting in general was pretty good and undoubtedly was a big improvement over what it was a few years ago. However, in general, the salt grounds were not placed far enough away from water but apparently have been located about midway between the water and the maximum distance it was figured the cattle would graze.

Shoemaker believed the poor condition of the lower ranges was "due to premature use." He felt the opening date of the grazing season was two to four weeks too early. The problem could also be improved by developing "a definite distribution plan by natural management units and making an attempt to have the cattle distributed, salted and herded in accordance with the plan from the very beginning of the season."

Shoemaker had some strong comments about the common grazing of cattle and sheep in the Baker and Strawberry creek drainages. He observed:

> I understand this range was grazed in common by sheep and cattle a few years ago which may be the cause, at least in part, of its present depleted condition, since the forage types are not adapted to common use grazing. It is believed cattle are securing practically all the forage that would be taken by sheep excepting possibly some of the snow berry. But I am sure this is not of sufficient importance to justify grazing both classes of stock. With exclusive sheep grazing it is believed there would be a waste in grass forage just about equal to the waste in browse forage under exclusive cattle grazing.
>
> The Strawberry drainage is grazed by both sheep and cattle which I think is entirely proper from a forage standpoint. This country is also closely grazed but a number of the more rocky slopes support blue bunch-wheat grass which is being utilized to a very small extent. Poor herding of the sheep on this allotment, it is believed, is partly responsible for the poor conditions particularly along the water and in the aspen types. The sheep are herded by Basques who believe in close herding and shading of sheep on water for a considerable part of the day. No effort was being made to graze the sheep on a number of the slopes which are accessible to this class of stock.

One of the principal problems in "securing proper management" of the ranges in Nevada National Forest, according to Shoemaker, was the "Basque sheep herders." The Basques close herded the sheep and used dogs "to a large extent which results in trailing out and wasting lots of forage." The herders drove "the sheep into water," "allowing them to stay there for a considerable part of the day." Instead of "camping ahead of the sheep and simply directing the movement of the leaders," the herders bunched "them up by using dogs from behind them" and drove them across the range. Accordingly, Shoemaker recommended that forest officials work directly with the sheep owners rather than the herders to change grazing practices and urged the Forest Service to consider making "the permittees change the nationality of the herders."[125]

An extensive report on grazing in Nevada National Forest was prepared by R.D. Garver, Inspector of Grazing, on November 14, 1924. The report provides one of the best summaries of grazing conditions in the forest during the 1920s. Garver noted that grazing was "the major activity on the Nevada" and that the 1924 grazing season "was the driest for a decade or so." Between the mountain ranges in the forest were "relatively level, wide, sparsely settled valleys" that contributed much "to the carrying of the stock" on forest

---

125. Memorandum for Grazing, D.A. Shoemaker, Inspector of Grazing, August 8, 1928, 1449 – Inspector of Grazing, August 8, 1923, 1440 – Inspection, Year 1923, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

lands during the summer season. The valleys furnished "spring and fall range, and to a large extent the winter feed for practically all the sheep and some of the cattle."

In general, the Nevada National Forest ranges were, according to Garver, "rather dry, of relatively low carrying capacity, and on the whole not too good a range for the fattening of lambs." On the Snake Division the carrying capacity was 63 acres per cow and 13 acres per sheep. Thus, there "must be large areas of inaccessible and low carrying capacity range, and a cow must travel considerable distance to obtain sufficient forage upon which to subsist." To provide for proper distribution of animals and prevent serious localized overgrazing, cattle "must be broken in general, at least, into small bunches." The entire Snake Division was found to be overstocked, necessitating a voluntary ten percent reduction for range protection purposes and removal of several permittees to the Schell Creek Division.

According to Garver, good progress "in adjustment of seasons to fit the vegetative conditions" had been made on the range of Nevada National Forest. Except for minor adjustments to meet local conditions on the forest, the seasonal situation was "relatively satisfactory." However, he recommended that the season for cattle and horses not be opened on the Snake and Mount Moraja divisions before May 16. Forest supervisors were to be allowed a two-week discretionary period to open grazing seasons.

Garver devoted considerable space in his report to a discussion of stock handling problems on the Snake Division. He elaborated on the continuing need to enforce range protection and improvement practices:

> There are no systematic deferred and rotation plans for the sheep allotments on this division. The ranger has made a practice, it is understood, of deferring those areas which are in need of protection. Here again, probably a systematic plan would help a new ranger to keep the management end going.
>
> About 200 yards east of the Upper Spring in Murphy Wash Supervisor Beam and I found in one place portions of eighteen blocks of pressed salt and three pieces of red rock salt. In the beginning it is estimated that there were about 200 pounds of salt. This is on Mr. Swallow's range, and upon inquiry he stated that he had sent the salt up with instructions to his men to distribute it according to the plan that he and the ranger had agreed upon. It is very evident that no very serious attempt was made by Ranger Quate to see that this salt was properly distributed. This is about the worst breakdown in the salting plan on the Nevada that I saw.
>
> On common use ranges on the Nevada, the actual application of a deferred and rotation plan has been difficult because the cattle were not herded and in general drifted to the deferred areas just the same as to any other. We must be very careful in formulating these plans that something really worthwhile is accomplished. The sheepman has a true complaint if we defer a portion of his allotment so far as his use is concerned, and then do not require the cowmen to so handle their cattle that the area will be protected. This is at times difficult to work out, but it should be kept in mind, and if at all possible the cattle should be excluded from these areas either by actual herding or so framing the salt plans as to keep all salt a considerable distance from the deferred area.
>
> Sheep continue to shade on water and on canyon bottoms. Where shade and water are both scarce I have come to the conclusion that it is pretty near impossible to prevent sheep from shading on water. I, of course, admit that it

> is hard on the range, and that where possible the sheep should be watered and then taken to a nearby ridge to shade. We will have to use some judgment in this matter, and where it is possible for users to water, then drive their sheep on to shaded areas, insist on it. But where the shade is pretty scarce and there is no chance to pass on, it seems as though we would have to put up with the practice of shading up on water.

Trespass continued to be a problem on the range of Nevada National Forest during the early 1920s. It was estimated that at least 500 mustangs were in trespass on forest lands in 1924. Most of the mustangs were unbranded, and those which were generally had no owners. State laws were too unwieldy to handle the situation, so stockmen were "seeing that a lot of them receive lead poisoning."

In the past considerable trespass trouble had been experienced "from nomadic bands of sheep, particularly on areas where the boundary" was not marked, thus preventing Forest Service officials from filing trespass violations. A new practice of appointing per diem trespass guards had been initiated until the entire boundary could be surveyed and marked. Trespass from drifting cattle continued to be a problem on the forest, however, since cattle were run yearlong in the surrounding valleys and several of the permittees had stock considerably in excess of their permitted numbers.

According to Garver, the Nevada forest was "fully organized as to stock associations, several new associations having been perfected within the last year or so." The stockmen and forest rangers were working "in good spirit," and headway was being made concerning range issues "from a cooperative standpoint."

Recently, a special rule relating to allotment of grazing privileges in Nevada National Forest had been issued by the stock associations and adopted by the Forest Service. The rule concerned the question of commensurability of ranch and range holdings in determining qualifications for new allotment applicants and purchasers and providing a basis for the issuance of ten-year permits. The rule read:

> New applicants for sheep and established permittees shall be considered as having commensurate ranch property upon which to base transfer or continue grazing preferences where:
>
> 1. Land is owned and operated in connection with the sheep, producing 50 pounds of hay per year per head of sheep, or its equivalent in other suitable crops.
>
> 2. Ownership or control of sufficient spring and fall range to carry the stock during the spring and fall season. It being understood that control of water and spring and fall range may be interpreted to mean use of such water and range over a period of years or access to water and range on public range where it is reasonable to assume under the custom of the locality that such water and range is available.

Forest range users had constructed most of the water improvements on the Nevada forest. The recent improvements followed a standard 18-inch "half round galvanized iron tank" plan, thus making them more durable than earlier water improvements. It had been standard policy "where absolutely new country was opened up or the carrying capacity increased by water development to allow those doing the work the benefit by increasing their preferences."

Sheep outfits, according to Garver, were not burying their cans or cleaning up their camps. Thus, he recommended that a mandatory policy be issued requiring that camps "be cleaned

up where they are located on public camp grounds or where there is a headquarters camp year after year." Garver went on to state that in "the disposition of the bodies of dead animals, it is felt that where these bodies are in or near running water or on public camp grounds or near any administrative site which is used for camping purposes or along a public highway that without exception the bodies should be burned or buried at the expense or by the owner."

Garver also commented on the movement "to place the Snake Division within a State Park and exclude grazing." He stated:

> At the present time this movement has died down, and in all probability it will not come up again. The State of Nevada is not favored to any great extent with antiquities of any sort, and the State government has taken a great interest in the Lehman Cave and the surrounding caves. At the present time a national monument covers the best part of the Lehman area. Grazing has been restricted in the past to an extent that it did not interfere with the recreation use made of the Lehman area. In my judgment, this is all that is necessary. Summer range in Nevada is far too valuable to be set aside for purely recreational purposes when the most of the range has little recreational value. I think that recreation and commercial grazing both have a use on the Snake Division. One use need not be subservient to the other, but a common sense plan of recognizing both uses should be worked out. No greater area should be withdrawn from grazing use than is needed for recreation. On the other hand, it would not be fair to recreation to allow unrestricted grazing on the choice recreation areas. So long as Lehman and Baker Creeks are reserved for the recreationists until the camping season is over, there should be no objection. The above plan has been followed pretty much during the past season and I do not see why it will not meet the needs of the situation in a way that will be satisfactory both to the recreationists and to the stockmen.[126]

By the late 1920s detailed grazing plans were developed annually for the allotment permittees. Examples of these plans for the Bonita Basin and Strawberry Creek drainages in the Snake Division during 1927 may be seen in Appendix X.

A report on grazing management on the Snake Division prepared by Forest Ranger Warren Taylor in February 1932 described range conditions during the early 1930s. Taylor observed that the division had been used in common by cattle, horses, and sheep for several years, resulting in overgrazing of some allotments. Virtually all the cattle allotments had been converted to sheep, however, and the remaining cattle allotments were under non-use, thus improving range conditions. A large number of wild horses had been killed in 1930, but fewer were destroyed in 1931. If the division was closed to horses in 1932, Taylor believed they would "be pretty well cleaned up." He noted that supervision of the permittees was needed since all of them wanted to get their stock "on the high ranges first." He promoted development of springs and installation of troughs, because the "more watering places we can develop the faster our range will come back." Most of the existing watering locations were overgrazed, because the recent drought had forced the permittees to take their stock to those areas more often than usual. Deferred and rotation plans were

126. Memorandum for District Forester, R.D. Garver, Inspector of Grazing, November 14, 1924, 1440 – Inspection Year 1924, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

being developed for the division, whereby an area on each allotment would be deferred from grazing each year.[127]

During the mid-1930s the Forest Service undertook several initiatives to improve grazing conditions on the Snake Division. Forest rangers and ranchers killed wild horses, the numbers destroyed amounting to 19 and 42 in 1935 and 1936, respectively. Forest officials planted "70 acres to blue grass" to "thicken up the meadows" in 1935. Two quarts of acorns were planted along Baker and Lehman creeks in 1936. The permittees, it was noted, closely followed their written instructions, thus caring for their allotments in an appropriate manner and getting heavier lambs and more wool in the process.

By the mid-1930s there were eighteen sets of watering troughs in Nevada National Forest, on five of which a 2,200-gallon storage tank had been installed. At the troughs where there were tanks sheep "watered in" one-half hour, while at the others they spent four to six hours. Thus, efforts were initiated to construct tanks at each watering trough.[128]

By the late 1930s the Forest Service permitted some 400-500 cattle and horses and 7,500-8,000 sheep to graze on ten allotments on the Snake Division. The allotments were: Shingle Creek, Weaver Creek, Strawberry, Baker Creek, Pole Canyon, Merchum, Snake Creek, Big Wash, Lexington, and Swallow. The grazing seasons, which were regulated and supervised by forestry officials, were described by Forest Ranger Warner:

> The season established on this district for sheep is considered to be proper. The fluctuation in the season over quite a long period of time in this locality would indicate that the 15 days allowed to cover just such variations will no doubt take care of any differences in the vegetative readiness of the low ranges in practically all cases. It seems that at no time has the season been earlier than the 1st of June and later than the 1st of July which are the bounds allowed under the present season for sheep.
>
> The season for cattle, established on this district, might be a little early for the following reasons: All the canyons with the exception of Snake Creek are without drift fences to hold cattle in the lower zones until the vegetation on the upper ranges is ready. The majority of canyons rise rapidly in elevation and it is only a matter of three or four miles from the lower range to the high ranges which are not ready until after the 15th of June and later. Without adequate zone fences and drift control improvements it is impossible to hold the cattle down off from the higher meadows until the forage is ready and to hold the cattle on the lower ranges where considerable feed is available that is ready.

Despite range management controls forage growth and range conditions on the Snake Division fluctuated with weather conditions and precipitation amounts. In 1938, for instance, Warner noted:

> The season started out very favorable for forage production. In fact more grass grew on the lower elevations than had been seen here in years. It looked very favorable for one of the outstanding years from a forage production standpoint. However, moisture fell during the month of July and August and all the upper ranges suffered from this drought. The 1st of the season in the upper ranges

---

127. Grazing Management Plans; Snake Division, February 2932, Warren Taylor, Forest Ranger, Historical Files, USFS, Ely.

128. Report, Nevada, Annual Grazing, 1935, December 1935, and Report, Nevada, Annual Grazing, 1936, November 1936, Warren Taylor, Forest Ranger, Historical Files, USFS, Ely.

was so cold that little growth resulted and then when it did finally warm up to a point where plant growth could go on the ground was so dry and as no moisture fell the forage did not make the growth that it normally does.

In spite of the lack of precipitation during the summer this past grazing season saw more water in the streams and springs than had been experienced in many years. This was the result of the very heavy snow fall occurring on the mountain during the past winter. Streams that had not run water in 20 years had water from the melting snow running further down their old channels than for some time. Use was made of this water in several localities where stock were grazed that ordinarily could not have done so at that time of the year due to the lack of water. Many old seeps and springs long since dry during the past several years of drought have started back. It is felt that with another favorable winter the ground water table will be built up to a point where water, range water, will not be such a premium as it has in the past.

It is thought that generally the ranges on the Baker district are in quite good condition except for an occasional critical area. This improvement is due largely to the change in the amount of moisture (the annual precipitation) and also to the fact that perhaps the district is more nearly at the proper stocking point than for some time.

Warner recommended an extensive grazing survey of the Baker Creek, Strawberry, Weaver Creek, and Shingle Creek allotments. This area was "in need of definite management and a grazing reconnaissance" was "vitally necessary for factual information in the proper preparation of the present management plans based on past history, use and observations." The majority of this area was

used by the Robison Bros. and has had 3595 head of sheep and 100 head of cattle using the range under term and temporary permits during the 1938 grazing season. The area comprises about 70 square miles all north of the Baker-Snake Creek divide. Of this section about 7,410 acres is considered barren and inaccessible while 41,204 acres are considered open to grazing by livestock.

Warner also reported that 23 of the 27 water developments on the Snake and Mount Moriah divisions were "placed in first class condition" during 1938. This work included tarring of troughs and tanks, repair or replacement of broken pipe, installation of overflows and drain pipelines, provision for drainage of waste water, catchment basins, and storage, digging out and fencing of springs, and cleaning out of earth reservoirs. The work was completed largely with funds and labor provided by the Emergency Relief Administration.

Warner noted that drift, zone, and boundary fences had been repaired. Few repairs were required, however, as most of the fences were relatively new.[129]

During the late 1930s, as in earlier years, ranchers exerted pressure on the Forest Service to increase the number of animals permitted on their allotments. One such example occurred in August 1939 when George T. Baker and Jack Singleton attempted to convince Forest Supervisor A.E. Briggs that there was sufficient forage in the Baker Creek-Snake Creek area to permit more cattle grazing in the vicinity. Accordingly, Baker, Singleton, and

---

129. G, Management, Annual Report, Nevada, December 10, 1938, S.D. Warner, Forest Ranger, Historical Files, USFS, Ely. This report contains comments and observations on each of the allotments on the Snake Division. A copy of this data may be seen in Appendix Y.

Briggs "rode by saddle horse up Baker Creek to the Deishman cabin, and then returned to the South Fork Trail and up the south fork to the basin and pass leading into Snake Creek, then down Timber Creek to main Baker Creek." In his report of this trip Briggs noted:

> A few days previously I had been requested to make this trip by Geo. Baker, and during the trip, he revealed that his objective was to convince me that considerable forage was likely to be unutilized in Baker Canyon this grazing season which may justify the Forest Service to increase his number of permitted cattle next year. Jack Singleton ostensibly made the trip to look for some of his cattle which he is out, but he exhibited a lot of interest in the range in this locality and apparently desired to determine for himself if surplus range were available, and if the Forest Service had been fair with him in disapproving his application for a permit to graze cattle this year.
>
> In riding up Baker Creek to Deishman's cabin we counted approximately twenty head of cattle, most all of which were Geo. Baker's. Every meadow along the canyon had been pretty heavily used, and apparently by the end of the grazing season, these meadows will have received full use and probably over-use. There is, however, some forage unutilized on the steep hillsides along the main canyon and the cattle should be pushed out of the canyon onto these hillsides through salting or otherwise in order to protect the canyon meadows from overuse.
>
> In riding up the south fork we noted that the Gonder sheep had been trailed a long distance from the upper basin to a small meadow below. The damage done in trailing to this small area of feed far exceeded the value of the feed. It was obviously a mistake to trail these sheep so far in order to utilize a very small meadow.
>
> The Gonder sheep were found in the basin at the head of South Fork where the trail passes through to Snake Creek. This basin had been pretty fully utilized, and the herder stated that it would be necessary for him to stay several days longer in order to get the number of sheep days as shown on the rotation plan. It seemed quite obvious that this will result in excessive use of this area. The herder also stated that it would be necessary for the sheep to cover all of the areas shown on the map at least twice and some of them three times in order to get the full number of sheep days provided for in the plan.
>
> The plan calls for 504 sheep in this band of ewes and lambs. The sheep were pretty well scattered and I would estimate more than 504 sheep. The herder said the sheep had not been counted by the ranger since entering the forest. He stated the band had been counted a few days previously by he and Mr. Gonder, but he could not remember the number counted. Obviously, they should be counted by the ranger at the earliest practical date.

Briggs concluded "that the main Baker Creek to the Deishman cabin, the south fork to the upper basin, and lower Timber Creek" was "being fully utilized by the number of cattle now permitted." Due to the "narrowness of the canyon and small size of the meadows which comprise the bulk of the forage," he felt it would be "a bad mistake to allow sheep to graze in either of these areas and must not be allowed." He also concluded that "the upper areas which are planned for sheep grazing will not carry the number of sheep permitted for the full season." As a result of the ride, Baker agreed "that Baker Creek would not carry more cattle than are using it this year," and Singleton admitted "that the Forest Service did the proper thing when they disapproved his application for a cattle grazing

permit last spring." Briggs observed that the range in the locality traversed was "overstocked when the obligated numbers of stock are grazed, and adjustments were necessary to prevent damage to the range."[130]

Cattle and sheep were grazed in common on the Baker Creek Allotment between 1914 and 1941. During the winter of 1941 and 1942, however, the class of stock was changed to all cattle and horses on "a 5 to 1 basis on permitted numbers without regard to season." The Forest Service developed a two-step program to solve the problems resulting from this change in the class of stock:

1. Proper utilization of the low range by construction of a drift fence across Baker Creek at the mouth of Pole Canyon

2. Proper utilization by riding, salting, and water development, the latter particularly in Horse Heaven[131]

The Baker Creek Allotment remained a problem for Forest Service officials as they attempted to reduce overgrazing during World War II. In September 1943, for instance, Forest Supervisor Briggs reported:

> We rode the Snake Creek portion of the Baker community allotment on September 2 with Wayne Gonder. We found the available forage within reasonable reach of cattle, had all been taken. It had been heavily used. Many cows with calves were in fair to poor flesh condition, indicating a shortage of feed.
>
> On September 3, we rode the Baker Creek-Timber Creek-Pole Canyon end of the Baker cattle allotment with Glen Bellander. This part of the allotment has been generally heavily used and many cows with calves were in poor flesh condition for this season of the year. Some little feed was still available in the South fork basin, but 30 odd head of cattle found there would very soon have this area closely grazed. Some little unreachable feed was noted in the head of Pole Canyon in very steep country.
>
> The Baker creek unit is fenced so that cattle can be, and have been controlled on three zones, and Snake Creek in two zones. The appearance of both the cattle and the range, strongly indicates that the cattle were held too long on the low and intermediate zones.
>
> At the time of the inspection, the number of cow months were computed, based on the dates the cattle entered the allotment, and on the basis of the present condition of the range, it is clearly indicated that the allotment is at least 38% overstocked.

Accordingly, Briggs sent the following letter to George T. Baker, Glen Bellander, and Wayne Gonder:

---

130. Memorandum for Files, A.E. Briggs, Forest Supervisor, August 18, 1939, 1440 – Inspection, Year 1939, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

131. Range Allotment Management Plan, Nevada National forest, Baker Creek Allotment C&H, April 1942, Historical Files, USFS, Ely.

> I believe it is very evident to all of us that the available forage on this allotment is insufficient to hold the cattle for the full grazing season. It can be said that generally the usable range had been heavily used at the time the inspection was made. The main permitted numbers of cattle were some 15 days late entering the allotment. The condition of the range and also the cattle clearly indicates that the cattle were held too long on the low and intermediate zones. There are many cows with calves in very poor flesh condition for this time of year in fact, too poor to go into the winter months. This is a very undesirable condition which should be corrected, and it is hoped that we can arrive at some adjustment which will be agreeable to all concerned by the beginning of another grazing season. In the meantime, your cattle will lose flesh as long as they are left on the allotment, and the longer they are left on the allotment the poorer the forage conditions will be next year.[132]

During the postwar years the Forest Service initiated revegetation efforts to improve grazing conditions on the Snake Division. In 1947, for instance, a 310-acre tract in the Snake Creek drainage was planted. The ground was plowed in the spring, and seed was planted by broadcasting and railing in the fall. After the seed matured the following year a spiketooth harrow was drawn over the parcel, thus resulting in a full stand of plants. The permittee for the allotment cooperated by not grazing the plot for at least two years.[133]

A newly-revised grazing management plan for the Baker Ranger District was approved in October 1952 by the regional office in Ogden. According to the plan, the ranger district (covering the Snake and Mount Moriah divisions) had a gross acreage of 296,074. Of this total 77,948 acres were usable and open to grazing. The preference obligation for the district was 1,061 cattle (4,598 animal months) and 6,185 sheep (18,555 animal months), while the estimated grazing capacity was 959 cattle (4,153 animal months) and 4,400 sheep (13,200 animal months). The approved grazing season for cattle was June 1 to October 10, while that for sheep was June 16 to September 15. It was noted, however, that cattle were usually off the range by September 30, because the range was often fully utilized by that date and the stockmen wanted their cattle out of the forest when the deer hunting season began on October 1.

The plan noted that there were 49 ranches and about 75 families surrounding the Baker Ranger District who were dependent on the forest for range grazing. The three major communities were Baker (5 ranches, 16 families), Garrison (12 ranches, 25 families), and Shoshone (7 ranches, 2 mines). The remaining ranches and families were in scattered locations near the forest. All grazing permits were held by dependent ranchers located near the district.

To qualify for grazing permits the ranchers had to meet commensurability standards. For cattle the standard was "production of 1/2 ton of hay per head on owned lands." The standard for sheep was "ownership of lands producing 50 pounds of hay per sheep and ownership or control of sufficient spring and fall range to carry the sheep while off the forest."

The plan evaluated grazing concerns in relation to watershed, recreation, wildlife, and timber uses. In terms of watershed management the plan stated:

---

132. Memorandum, A.E. Briggs, Forest Supervisor, September 11, 1943, and A.E. Briggs, Forest Supervisor, to George T. Baker, Glen Bellander, and Wayne Gonder, September 13, 1943, 1440 – Inspection, Year 1943, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

133. Memorandum of Inspection, W.W. Dresskell, July 27, 1949, Historical Files, USFS, Ely.

> Protection of our watersheds is the main obligation of the Nevada National Forest to the public. Therefore, grazing will be regulated to best preserve the plant cover so that it will contribute most toward maximum water storage and proper runoff, and the maximum production of forage for livestock and big game use.

To protect recreational use of portions of the forest the Lehman Caves National Monument and Lehman Creek picnic and campground areas were closed to grazing. Concerning these areas the plan noted:

> The Lehman Caves National Monument . . . is closed to grazing, however, the area is unfenced and permitted cattle drift from adjacent forest areas onto the area. There has been some little complaint from the Park Service to the cattle permittees in the past in regard to cattle trespass. (No complaints have been made to the Forest Service). It is not reasonable to expect the permittees to herd their cattle from this area when all the adjacent areas are open to cattle use. If the Park Service wants to eliminate grazing they should fence the area.
>
> The Lehman Creek picnic and campground areas of approximately 40 acres have in the past been grazed lightly by sheep the latter part of the grazing season to reduce the fire hazard. Inasmuch as the sheep must pass through this area to use Lehman Cr. Canyon it may be good business to continue this practice, however, extreme caution should be used to avoid unsanitary conditions which would bring complaints and criticism from the public.

In some areas there was conflict between domestic stock and deer on the Snake Division. The plan observed:

> During the late fall and winter, most of the deer are forced out of the higher areas by snow and move to the south end of the division in the Murphy Wash, Johns Wash, Big Springs Wash, and Trough Mt. areas. Much of the south end winter range is outside the forest and is in very serious condition as evidenced by the hedged and highlined condition of the browse plants, mahogany, cowania, purshia, and sage. The number of deer have been allowed to increase far beyond the grazing capacity of the winter range. For the past eight years the estimated numbers of deer on the Snake Division has been at or near 3000 head. To date no one had formally attempted to estimate the grazing capacity of the deer range. We do know that a reduction in numbers must be made and the herd should probably be reduced to about 1800 head or less.
>
> No areas have been closed to livestock for big game, nor is this contemplated now. The policy is to reduce the numbers of grazing animals responsible for range damage, whether it be game or domestic stock. This calls for close study of the damaged areas and on areas where damage to the range is threatening, to determine the class of animals responsible.

Aspen was the only timber type that was receiving damage from grazing. The Forest Service was "not getting sufficient survival in reproduction to insure perpetuation of the stands." Thus, grazing in aspect areas was to be regulated.

The Strawberry Creek Allotment was the only one in the district where both sheep (967) and cattle (39) were permitted to graze. This permit was based on the fact that some areas of the allotment could not be used by sheep because of poison but could be grazed by cattle.

Trespass on the Snake and Mount Moriah divisions continued to cause concern for Forest Service officials. Thus, the plan attempted to deal with this issue:

> The Snake and Moriah Divisions are bounded on nearly all sides by outside ranges used Spring and fall, and often yearlong, by cattle, horses, or sheep. Unpermitted cattle and horses tend to drift on the forest when forage and water become scarce on the lower outside ranges. Some cattle and horses drift on the forest before the feed is ready which results in premature grazing and damage to the range. There are only twenty one miles of boundary fence and a continuous effort must be made by the ranger to prevent trespass. Experience has demonstrated that it is much easier to prevent trespass than to handle it after it has occurred. Cattle can best be counted in the spring when the stock are rounded up and the calves branded. Winter counts are impractical because most of the stock graze on the Public Domain all winter and are too scattered for counting. These spring counts should be made as checks to determine the number and disposition of excess cattle during the grazing season. When possible, all cows will be counted as they enter the forest. Sheep will be counted as they enter the forest or shortly thereafter.[134]

When the National Park Service investigated the Snake Range in the fall of 1958 to determine its suitability for national park status, the subject of grazing was analyzed meticulously. In the report of its findings Park Service officials reported on the existing status of grazing on the Snake Division:

> In the National Forest cattle graze predominantly in the canyon bottoms. The mountain sides are either largely devoid of palatable vegetation, too far from water, or too steep. The quantity of grazing land is relatively small considering the size of the Snake Range as is evidenced by the small number of cattle under permit. The National forest range plays a minor role in sustaining the cattle industry around these mountains. Summer pasture for livestock is provided largely by irrigated lands, mostly outside the Forest. There are no sheep allotments above tree line so the tundra vegetation is reputed to be largely undisturbed or has regenerated substantially from previous abuses. The consensus is that livestock grazing of recent years in the Snake Range is materially reduced over that formerly occurring.
>
> The conflict of interest between cattle grazing and public use in Lehman Canyon has been decided by the Forest Service in favor of recreation. A similar conflict exists in Baker Canyon but to a lesser degree due to fewer campgrounds. Cattle have not as yet been excluded from this allotment. Some Forest Service officials feel, however, that grazing eventually will have to be eliminated from this canyon also. Thus regardless of whether the area is administered by the Forest Service or by the Park Service, the time is not far distant when the grazing of cattle in the canyons suitable for public camping would have to be reduced or eliminated.
>
> On the north end of the Snake Division of the Humboldt National Forest, Mr. Bishop has a permit to graze, 2,800 head of sheep for three months in the summer. This allotment consists of roughly 17,000 acres of the Forest and is contiguous on the west side to a sheep grazing allotment of some 18,000 acres

134. Ranger District Management Plan, Baker Ranger District, Snake and Mt. Moriah Divisions, Nevada National Forest, October 22, 1952, Historical Files, USFS, Ely.

of Public Domain assigned by the Bureau of Land Management to the C.B. Ranch Co.

South of Lehman Caves National Monument, Bolander, Eldridge, and Gonder run 385 head of cattle on the Forest for four months in summer. This grazing permit covers approximately 12,000 acres. Northeast of Lehman Caves National Monument Bolander and Gonder graze cattle on about 7,000 acres of Public Domain.

On the south side of Big Wash Mr. Osburne [sic] has a Forest Service permit to graze 40 head of cattle for 3 months on approximately 2,500 acres of the Forest. Osburne [sic] owns 330 acres of patented land in the Big Wash below this allotment which is classified by the White Pine County Assessor's Office as 35 acres of cultivated land, 40 acres of pasture, 135 acres of grazing and 120 acres of barren land.

Near the southeastern corner of this part of the Humboldt National forest, Mr. Dearden has a permit to graze 15 head of cattle on Chokecherry Creek. The allotment covers some 1,300 acres. According to Supervisor Dremalski [sic] this allotment is never used, but Mr. Dearden wants to keep it in force. The Dearden Cattle Company have a cattle grazing allotment from the Bureau of Land Management for many square miles of Public Domain south of the Snake Division of the Humboldt Forest. This company runs some 4,000 head of cattle. They are pastured in summer on patented, irrigated lands along Big Springs Creek which extends from the Big Springs to the vicinity of Garrison, Utah. Some winters the cattle are turned out on the desert.

In the southwestern section of the Forest the Swallow Brothers have a permit to graze 1,000 head of sheep in Murphy Wash during the winter. This allotment covers roughly 12,000 acres of the Forest. It is believed that more detailed information will show that either the Swallow Brothers or the Dearden Ranch run livestock in the Big Spring Wash also. The area is grazed in the winter. The Swallow Brothers have a large area under Bureau of Land Management permit south and west of the Forest upon which they run 3,400 head of cattle.[135]

During the 1960s the Forest Service devoted considerable time to developing objectives for managing range lands. As a result more formal scientific grazing allotment management plans were prepared. These plans took a more holistic approach to range management, emphasizing riparian, fish, wildlife, timber, grazing, and recreation values. These new emphases emanated from Congressional passage in 1960 of the Multiple Use-Sustained Yield Act, which supported conservation and specifically named the multiple uses of the national forests (except mining) and required their balanced inclusion in the management of the forests. Previously, the resources of recreation, range, wildlife, and fisheries had not been named in the law, but the new act directly stated that the national forests "shall be administered for outdoor recreation, range, timber, watershed, and wildlife, and fish purposes."[136]

---

135. "Field Investigation Report, Lehman Caves – Wheeler Peak," 1958, pp. 32-34.

136. Personal interview with Peter Demeule, District Ranger, Ely Ranger District, Ely, Nevada, June 15, 1988, and Rowley, *U.S. Forest Service Grazing and Rangelands*, pp. 231-32.

By the mid-1980s the Forest Service had further refined the scope and objectives of its grazing allotment management plans. The Forest Service defined the purpose and contents of its allotment plans in a 1986 document:

> The Forest issues grazing permits that specify the type and number of livestock and the season of use. Allotment management plans outline the use and development of each allotment on a long term basis; operating plans outline annual direction. Allotments are inspected by the Forest Service for use, condition, and compliance with grazing permits, the Allotment Management Plan, and the Annual Operating Plan. The permittee is responsible for herding, salting and doctoring his livestock and for maintaining improvements on his allotment.
>
> The current management direction for the range resource is to develop upward trends where the range is in less than good ecological condition. Also, emphasis is placed on obtaining the management on each allotment as prescribed in the Allotment Management Plan to coordinate forage production with other multiple use values. This includes proper use of the forage resource. Emphasis is also placed on the proper maintenance of range fences and water developments so that an effective management system can be continued.[137]

U.S. FOREST SERVICE MINING POLICIES IN THE SOUTHERN SNAKE RANGE

After establishment of the Forest Service in 1905 there was considerable friction between miners and forestry officials. While the general mining laws were enforced on national forests, miners claimed that Forest Service restrictions hampered their operations, thus affecting their profitability.[138] To settle the continuing misunderstanding the American Mining Congress appointed a committee to confer with Chief Forester Gifford Pinchot. Two conferences were held in March 1909, and as a result Pinchot promised "to develop a plan whereby the restrictions of the Forest Service" would cause "no injustice to any mining man."

One of the objectives of both the Forest Service and the American Mining Congress was to minimize the necessity for having Forest Service officials "consider the validity of mining claims in making statement of fact to the Department of the Interior." Thus, Pinchot agreed to the following stipulation:

> Mining claims in any National Forest apparently held in good faith for mining purposes will not be further examined unless the passage thereof to patent would be prejudicial to the interests of the Government if the said claims should in fact be found to be invalid. If any such claim is apparently not held in good faith for mining purposes, it will be examined by a qualified mining expert to ascertain the true condition, and the report of such mining expert will be submitted to the Department of the Interior for its consideration.

---

137. *Humboldt National Forest Land and Resource Management Plan, Final Environmental Impact Statement*, [1986], III, 19-20. Area ranchers complained about the paperwork associated with these more formal allotment plans. In earlier years Forest Service personnel had ridden the range with the ranchers, helping build improvements, erect fences, and develop springs. The more formal plans required yearly studies and extensive paperwork, thus limiting the amount of time Forest Service personnel spent on the range interacting with the ranchers. Personal interview with Owen Gonder, Garrison, Utah, September 17, 1988.

138. "Mining Claims on Forest Reserves," *Mining and Scientific Press*, XCVI (June 27, 1908), 887-88; "Mining Claims on Forest Reserves," *Mining and Scientific Press*, XCVII (July 4, 1908), 3; and "Mining Claims on Forest Reserves," *Mining and Scientific Press*, XCVII (August 8, 1908), 165.

A second dispute between the American Mining Congress and the Forest Service concerned the amount of timber miners could cut on forest lands for use in their operations. Pinchot promised a liberal administration of the free-use timber permit policy to miners. He reminded the Congress of the current regulations governing that policy:

> The holder of a mining claim in a National forest has the right to take timber from that claim for use thereon, or elsewhere, if such timber is used for the development of the claim from which it is cut. The regulations and instructions of the Forest Service concerning the free use of timber on National Forests provide that timber to the amount of $20 in value can be secured from a ranger, and a supervisor can grant free use to $100 in value. And since the District Forester on December 1, 1908, became invested with the powers given the Forester by Regulation No. 23, such District forester may now grant free use when necessary for amounts in excess of $100.
>
> The Service desires that men engaged in prospecting or developing mining claims in the National Forests should have a liberal free use of timber from the Forests, if the timber on any claim is not sufficient for its development, so long as it is a prospect and not a producing mine. When a prospect becomes a mine and begins to produce ore, it is then a commercial enterprise and no more entitled to free use of Government timber than any other business.

To make the free-use policy even more amendable to miners Pinchot issued the following instructions in 1909:

> In granting free-use permits, Forest officers should make every effort to provide, without unfairness to other interests entitled to consideration, and without injury to the Forest, that no prospector or miner working for the preliminary development or exploration of his claim shall be denied the free use of timber needed and suitable for these purposes within reasonable limits, if there is not upon the claim to be developed a sufficient amount of timber for such uses. Care should also be taken to avoid the marking for use under a free-use permit of any timber which cannot be used by a prospector or miner, or any small user to whom a free-use permit is issued. Large users of special material who operate, or can operate, sawmills may properly be required to take with such special material other merchantable timber which it is necessary to remove for the future productiveness of the Forest or to avoid rendering the remaining timber on the area unmerchantable. But it is believed that very few cases will arise which will make the enforcement of this restriction necessary as to free-use permits.[139]

During the next seven decades the Forest Service continued to regulate and monitor mining in the national forests within the parameters of the general mining laws. In 1980 a bureau pamphlet summarized the Forest Service policies on regulating mining:

> Anyone proposing to conduct operations which might cause a disturbance of surface resources on the National Forest must file a "Notice of Intent" with the local District Ranger. The District Ranger then has 15 days to determine whether or not the proposed operations will likely cause a "significant" disturbance of the surface. If he determines that a significant disturbance is likely, the operator will be required to prepare a plan of operations which includes provisions for the protection and rehabilitation of the surface resources.

---

139. "Forest Service and Mining Claims," *Mining and Scientific Press*, XCVIII (May 29, 1909), 756-57.

A "Notice of Intent" is not needed to simply "pan" for gold when it will not cause significant surface disturbance. However, a "Notice of Intent" is required for any operations which will involve the cutting of trees or the use of mechanical earth moving equipment.

When the "Notice of Intent" is filed, the local District Ranger will be able to advise you of any permits which may be required by local, state, or other federal agencies.[140]

U.S. FOREST SERVICE ARCHEOLOGICAL RESEARCH ACTIVITIES IN THE SOUTHERN SNAKE RANGE

By the early 1920s the Forest Service was aware that there were significant archeological and speleological resources on the Snake Division. The resources were centered primarily in the Baker Creek Cave System, where pictographs were found in the late 1910s or early 1920s, but there were caves, rockshelters, and other prehistoric sites elsewhere in the division. Although minor exploration and research work was conducted during the 1920s, extensive archeological research efforts did not begin until the summer of 1934.[141]

On July 30, 1934, the Secretary of Agriculture granted a one-year permit to the Southwest Museum of Los Angeles, California, to conduct archeological explorations and excavations in caves on Nevada National Forest lands. The permit was extended annually until work was concluded in June 1940. The studies, which were directed by Museum Curator Mark R. Harrington, were approved by the Smithsonian Institution and funded in part by the Carnegie Institution of Washington. The caves for which the permits were granted were located along Smith Creek and near "The Narrows" along upper Baker Creek. The primary purpose of the archeological fieldwork was to conduct digging in these caves and nearby rockshelters for evidence of "human and prehistoric animal deposits and bones."[142]

Harrington, who has sometimes been called the "father of Nevada archeology," had become interested in the Smith Creek and Baker Creek caves during the summer of 1932 when he, his wife Edna Parker Harrington, and son Johns surveyed the region along the Nevada-Utah border north of Gypsum Cave. During the survey the Harringtons found a number of caves containing evidence of human occupation. They observed and sketched various pictographs and collected artifacts for the museum.[143]

In September *Masterkey*, the official publication of the Southwest Museum, noted that the institution had received "relics of a colony still more distant from the Pueblo centers in

---

140. U.S. Department of Agriculture, Forest Service, *Things . . . You Need to Know When Searching for Gold in the National Forests*, August 1980.

141. "Sawmill Rockshelter" located on Baker Creek was excavated by Louis Schellback in 1927. His principal find was a cache of three bundles of snares made of Indian hemp or dog bone. Paul J.F. Schumacher, "Archeology of the Wheeler Peak Area," February 26, 1959, Vertical Files, Great Basin National Park.

142. Correspondence and documentary materials relating to the permit may be found in a notebook entitled, "HNF History – Land Uses," in Historical Files, USFS, Elko.

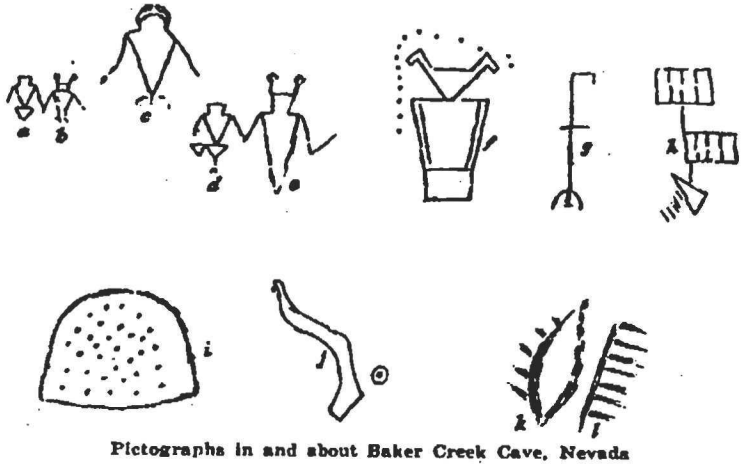
143. Ruth Simpson, "Mark Raymond Harrington: Father of Nevada Archeology," *Nevada Historical Society Quarterly*, VIII (Fall-Winter 1965), 16-19, and Johns Harrington, "Adventure in a Nevada Cave," *Desert Magazine*, VI (May 1943), 18-19.

Arizona and New Mexico – a colony established at the foot of Mount Wheeler . . . almost on the Utah line." The relics were

> a rough cooking-pot of oval form; a smaller jar made to represent two bowls, one sitting on top of the other and provided with a handle; a number of Pueblo potsherds, some decorated in black-on-gray, some of the well-known corrugated type; a couple of Indian-made beads; an arrowhead; and last, but not least, a brush made of stiff grass and native twine, exactly like those still used in Pueblo Indian homes, the stub end used for brushing the hair, the other for sweeping.

The relics had been found "in a series of small caves near Garrison, Utah, and near the place where Snake Creek, originating on Mount Wheeler, crosses the state line and runs out upon the desert." The pottery vessels were thought to date from "the second or Early Pueblo period" and were heralded as "probably the northwesternmost entire Pueblo vessels on record." The collection was found and presented to Harrington by former Forest Service ranger Graham S. Quate and his sons of Garrison.[144]

In the March 1933 issue of *Masterkey* Harrington's wife, Edna Parker Harrington, described the pictographs they had found in the Baker Creek caves the previous summer. The article included drawings of the pictographs, copies of which may be seen below:



Pictographs in and about Baker Creek Cave, Nevada

In her article Edna Parker Harrington noted that we moved camp and "were in the Alpine foothills of Mount Wheeler." The cave "farthest upstream was very damp and dark, with a penetrating chill, cruel in its intensity." Most of the pictographs, however, were near the entrance. She observed:

> The first pictographs, *a-e* of the illustration [see above], were copied from the rocks outside the cave's entrance. The figures seemed to be in association and are arranged in the relative positions that they appeared on the rocks. All were painted in red. *a, b* and *d, e,* the figures holding hands, suggest Kachinas and Kachina-mamas, or woman Kachinas, the horned ones being the males. If we might allow our fancy full play, the super-natural being with outstretched arms (c), soaring above the heads of the others, suggests a blessing upon the heads of those below him.

144. M.R. Harrington, "Relics of an Abandoned Colony," *Masterkey*, VI (September 1932), 115-16. Also see M.R. Harrington, "More Cave-Hunting," *Masterkey*, VI (September 1932), 120-21.

> Now we take a few steps around the corner, enter a rocky hallway leading to the outer entrance of the cave, and pause to look to the right, 'way above our heads, a huge horned Kachina, shown in figure *f*.
>
> Leaving this imposing Kachina, a step or two brings us into a kind of foyer above the cave mouth, where we find two more characters depicted (*g, h*), in about the same relative position to each other as shown in the illustration.
>
> How tantalizing! Not every fancy seems to offer anything for our peace of mind as pictograph *g* comes before us. The top of the figure, which resembles a Kachina's head, was black, and the connecting line of the figure below was red. What appears to be another Kachina head (*h*), as well as the little triangular device at the bottom with its associated lines, were all red.

After leaving this cave the Harringtons entered another cave a short distance down stream. This cave was dry and dusty and "gave the impression of having been long occupied." There were "pictures everywhere – many painted on the ceiling and continuing down below the present level of the floor." Mrs. Harrington crept back to where the ceiling and floor met, but "it was useless to try to sketch, for the paintings were very faint: only splotches of color remained, all form having been obliterated." Near the entrance, however, there were "several paintings in splendid condition." One was the arched form in figure *i*, which was painted in red with thirty-two dots within the outline. A short distance to the left was "a strange drawing, shown in figure *j*." The center of the circular figure was solid black, while red filled in the outer circle.[145]

During the summer of 1934 Mark Harrington conducted an archeological dig in what he termed Upper Baker Creek Cave. That November he reported on his activities and findings in *Masterkey*:

> Here in 1932 we had dug a test-hole near the entrance down to the depth of six feet without finding the bottom of its man-made layers of ashes and charcoal, layers of which, of course, meant a long period of occupancy, some time, by somebody. Now we sank a shaft near the original pit, and found that the ashes and charcoal, together with bits of the bones of food animals and fire-cracked stones, continued on down to a depth of more than twelve feet! About halfway down we uncovered a crude but unmistakable chipped stone implement--a sort of "chopper" or hand-axe; and farther down still, an obsidian chip and a broken scraper-like worked stone.
>
> In this cave we had thus found a satisfactory--almost too satisfactory-- depth for our human deposits, and in them such crude tools as very ancient man should have used. But alas! the bits of bone from our shaft failed to show any fragment that could be surely identified as belonging to an extinct Pleistocene beast. In the rear of the cave, on the other hand, a shallow test-hole turned up several suspicious looking bones among the familiar remains of deer and bighorn--and one in particular looked like horse. Why couldn't we have found these in the shaft with the ashes and implements? Maybe we will make such a find some day in Baker Creek Cave if we ever get the chance to dig it out properly.[148]

---

145. Edna Parker Harrington, "More Kachina Pictographs in Nevada," *Masterkey*, VII (March 1933), 48-50.

146. M.R. Harrington, "American Horses and Ancient Men in Nevada," *Masterkey*, VIII (November 1934), 165-69.

In March 1935 Mark Harrington wrote an article concerning the future prospects of archeological digs in the Upper Baker Creek Cave. He noted:

> The upper Baker Creek cave seems another good prospect, on account of its very deep floor deposits – again more than 12 feet – including long habitations in ancient times. These deposits contained ashes, fireplaces, and rude implements. While in this cave the bones of extinct animals were not found directly in the layers of man-made refuse, our test pit was of small diameter and there is plenty of room in the cave where such a combination might occur.[147]

Annual summer expeditions to the Baker Creek-Wheeler Peak area were led by the Harringtons and their assistant S.M. Wheeler on behalf of the Southwest Museum through 1939. During 1936 Wheeler investigated a 40-acre Pueblo II site 1-1/2 miles north of Baker. From surface collecting and test pitting he found

> potsherds, arrowpoints, hammerstones, one pestle, manos (long and short varieties), part of an excellently formed metate, implements chipped from both sides (probably scrapers), the head of a clay figurine, a small turquoise pendant, and a heavy pendant probably from shell, . . . potsherds showing the following varieties: gray plain ware; red plain ware; black-on-red; black-on-gray; black-on-white; red-on-gray; black-on-gray with fugitive red; corrugated ware; black-on-gray inside, corrugated outside; imitation corrugated around the neck and true corrugation around the body of the pot; incised; a combination of corrugated and incised (wiped); corrugated (wiped); cord-marked, and a combination of cord-marked and incised.[148]

Researchers at the Southwest Museum concluded that the site had "distinction of being the largest" Pueblo site "yet recorded so far north and west."[149]

In September 1937 a party from the Southwest Museum led by S.M. Wheeler pitched camp "in the rockshelter above Baker Creek." Excavations were begun at "Baker Creek Cave," and a "deep stratified deposit of human origin" was discovered. Among the mammal remains in the ash layers the archeologists recovered a bison tooth, a fragmentary bone artifact, and several crude stone implements. Various caves and rockshelters on forest lands near Mount Moriah were reconnoitered by the party, but no materials of interest were found. The party spent time further investigating the Pueblo II site near Baker and studying the Lake Bonneville terraces on both sides of Snake Valley.[150]

In 1938 the National Park Service contracted with Mark Harrington to excavate the deposit immediately underneath the natural opening of Lehman Caves. S.M. Wheeler began the excavation project in August 1938, recovering an undetermined number of human and faunal bones before a shortage of funds terminated the effort.[151]

---

147. M.R. Harrington, "Report of the Curator," *Masterkey*, IX (March 1935), 58.

148. S.M. Wheeler, "A Pueblo II Site in the Great Basin Area of Nevada," *Masterkey*, X (November 1936) 207-11.

149. F.W. Hodge, "Report of the Director," *Masterkey*, XI (March 1937), 42-52.

150. Archeological Report, Southwest Museum, 1937, M.R. Harrington, Curator, February 1938, Historical Files USFS, Elko, and S.M. Wheeler, "An Archeological Expedition to Nevada," *Masterkey*, XI (November 1937), 194-97

151. Trexler, *Lehman Caves . . . Its Human Story*, p. 55.

During the spring of 1939 a Southwest Museum expedition led by S.M. Wheeler continued earlier archeological studies along Baker Creek. The project was funded by Jean L'Empereur, a dietitian at the Monte Sano Hospital in Los Angeles. Among the sites investigated on this trip were the cave which had recently been discovered a short distance below the natural entrance to Lehman Caves, Ice Cave, and a "deep cave just below the Narrows."[152]

There was no organized archeological research on the Snake Division for more than two decades. During the late 1960s, however, the nationwide movement for preservation of cultural resources had an impact on Forest Service management. Officials demonstrated renewed interest in the protection and interpretation of prehistoric rock shelters and petroglyph and pictograph sites. Among the sites surveyed were: (1) a 1/4-acre petroglyph site on the north side of the north fork of Shingle Creek; (2) the Baker Creek rock shelters along the north side of Baker Creek that were seen as possible future interpretive sites, (3) a site (Site X) near Raised Spring that consisted of extensive petroglyphs and rock carvings; and (4) a 1/4-acre petroglyph site 1/2-mile southeast of Ohio Spring in Horse Canyon.[153]

The most significant of these sites was the petroglyph site near Raised Spring on the western flank of Wheeler Peak. The site was extensive, covering an area approximately 400 yards by 200 yards, and included 81 separate petroglyph panels containing a total of 140 individual elements. All of the basic petroglyph styles of Great Basin rock art, representing a span of some 3,000 years, were present at the site. The site was unusual in that the petroglyphs were in a pinyon grove, and very thin stone slabs weathered from a nearby outcrop were utilized for the inscription of the petroglyphs. As described in 1969 by Mel Aikens, an archeologist affiliated with the Nevada State Museum, the main importance of the site lay

> in the fact that it is the first, and for the present at least, the only fully recorded petroglyph (as opposed to pictograph) site of significant size known from White Pine County, Nevada. Its existence extends the distribution of all styles of Nevada petroglyphs into at least a portion of the northeastern sector of the state that Heimer and Baumhoff (1962:206) were forced to conclude was devoid of the petroglyph type of rock art. It is significant also that internal evidence from the site suggests the same relative dating of petroglyph styles for this area as has been established for other parts of the Great Basin. The area is thus firmly incorporated into the broader province of Great Basin rock art, from which it has been excluded.[154]

A team of professionals representing the Forest Service, National Park Service, Sierra Club, and Nevada State Museum studied the questions associated with protection, preservation, and interpretation of the site. They agreed that the usual protective measures, such as construction of a fence and posting of signs, would not be effective in safeguarding the site since the petroglyphs were inscribed upon thin slabs of micaceous schist, many of which were portable. The isolated location of the area made site development uneconomical.

---

152. S.M. Wheeler, "The Jean L'Empereur Expedition In Nevada," *Masterkey*, XIII (November 1939), 216-20.

153. John R. Glenn, District Ranger to Forest Supervisor, Humboldt N.F., January 7, 1970, Historical Files, USFS, Ely.

154. Mel Aikens, "The Petroglyph Site: Evaluation and Recommendations," [1969], Historical Files, USFS, Ely.

Hence they felt the site was in danger of vandalism from collectors of antiquities, art dealers, and mere curio seekers.

Accordingly, it was agreed that the petroglyphs that were portable should be removed from the site. The choice of moving methods, manner of storage, and the place of storage should be determined by Forest Service personnel. Since some of the petroglyphs could not be moved, a plan for mapping, photographing, and marking the petroglyph slabs prior to removal was approved in January 1970.[155]

The petroglyphs were removed from the site during the summer of 1970 and stored. During the early 1980s some of the slabs were installed as exhibits along a new Indian Rock Art Interpretive Trail near the Baker Creek campground area.[156]

U.S. FOREST SERVICE SPELEOLOGICAL RESEARCH ACTIVITIES IN THE SOUTHERN SNAKE RANGE

Because of its proximity to the celebrated Lehman Caves the Baker Creek Cave System had intrigued speleologists for years. Thus, the Forest Service sponsored a major research field study of the caves in the Baker Creek Narrows during 1952-55. The principal purpose of the study was to gain a better understanding of the dynamic relationship between the caves and surface streams in the vicinity.

The field studies were sponsored by the O.H. Truman and Max C. Fleischman Foundation of Nevada as part of the research program of the Western Speleological Institute based in California. Cooperating in the venture were the Nevada State Museum, the Santa Barbara Museum of Natural History, the Museum of Northern Arizona, and Stanford University.

During the three-year study the caves in the Baker Creek Narrows were explored and subjected to a variety of hydrological experiments. Among the caves examined were: Ice Cave, Crevasse Cave, Pictograph Caves and Rockshelter, Dynamite Cave, Deep Cave, Sawmill Cave, and Model Cave, the latter receiving the greatest attention.

The study concluded that because of their proximity and location in the same drainage area Lehman and Baker Creek caves were probably "related in their evolution, Lehman representing a more advanced state." Furthermore, the researchers found:

> The Baker Creek Caves (except Sawmill Cave) are recognized as having been connected by channels admitting circulating water. In its early stages flow through the system occurred principally under pressure, resulting in enlargement by solution along joints and bedding planes. After large passages had developed, the upper regions quieted to become lake basins and stream courses; the lower zones remained subjected to forced-flow. Boulders and cobbles of upland material suggest that the main water source was surface drainage, probably Baker Creek and melt-water from the Tahoe epoch glacier whose moraine dams the normal valley course. Ice Cave and Dynamite Cave constitute in-take ponors feeding the system from creek overflow. Fracture crevices, such as Crevasse Cave and the entrance of Deep Cave, supply trickling water from rain and melting snow. The caves of the west wall of The

155. Donald R. Tuohy, "The White Pine County Petroglyph Site: Further Recommendations," [January 1970], Historical Files, USFS, Ely.

156. Multiple Use Survey Report, Removal and Storage of Petroglyphs, Site X, Ely Ranger District, Humboldt National Forest, Region 4, [1970], Historical Files, USFS, Ely.

Narrows connect with Model Cave underneath Pole Canyon. Waters of the latter rise periodically, tending to overflow from the cave mouth as they did in the past, forming a karst resurgence. Episodes of quiet silting have been interspersed between periods of more violent flow in this cave.

The dry shelter caves in the east wall of The Narrows must have been part of a larger system – probably the Ice-Deep Cave system of the opposite wall – if continuity of flow indicated by their flutes is to be credited. Such an intercourse of galleries, once collapsed, could have resulted in The Narrows, which are otherwise a topographic anomaly. These galleries, either roofed or exposed, could very well have served to divert Baker Creek from its normal valley, into Pole Canyon. It is suggested that the moraine at the head of The Narrows may have forced the diversion.

Today upper portions of the caves have been abandoned by their streams and lakes, and speleothem deposition is proceeding. Model Cave alone remains as a seasonal reservoir, filling with water over most of its length whenever Baker Creek overflows into Dynamite and Deep Caves. While Pole Creek also disappears underground, dye tests have failed to reveal where its water goes. At least 1.8 second-feet of recoverable water are presently lost to subterranean channels of The Narrows each spring.[157]

Research on the Baker Creek Cave System continued during the 1960s and early 1970s under the aegis of various speleological groups. In February 1974 Alvin McLane, a professor at the University of Nevada, Reno, evaluated the natural features and significance of the cave system:

There are 16 known caves along Baker Creek: Baker Rockshelter, Coyote Hole, Crevasse, Deep, Dynamite, Fools Hole, Hallidays Deep, Ice, Lower Pictograph, Model, (Upper) Pictograph, Sawmill, Sink, Systems Key, T-Cave, and Three Hole. Crevasse, Deep, Dynamite, Hallidays Deep, Ice, Model, and Systems Key comprise the Baker Creek Cave System. They are physically or hydrologically connected, which constitutes the largest cave system known in Nevada, consisting of some 13,780 feet of cave passages. . . . Model Cave is unusual because here is a chance to study cavern development actively taking place. The water table in the cave fluctuates about 200 feet, an uncommon situation, where generally, the water table in most areas generally fluctuates only a few inches or a few feet per annum. Model Cave also has an unique floor slot, formed under submerged conditions where water moved both up slope and down slope under hydrostatic pressure.

Though not presently part of the Baker Creek Cave System, the Pictograph caves and Baker Creek Rockshelter on the north side of Baker Creek were probably once part of the cave system before being separated by Baker Creek cutting through the so-called Narrows.[158]

---

157. Arthur L. Lange, "Stream Piracy and Cave Development Along Baker Creek, Nevada," *Western Speleological Institute, Bulletin Number 1* (July 1958), 3-19.

158. Alvin McLane, "Evaluation of Baker Creek Cave System, White Pine County, Nevada, For Eligibility For Registered Natural Landmark Designation," February 23, 1974, Historical Files, USFS, Ely.

CHAPTER ELEVEN
ADMINISTRATION OF LEHMAN CAVES NATIONAL MONUMENT: 1922-1986

INTRODUCTION

The most comprehensive and best researched historical account of Lehman Caves is Keith A. Trexler's study entitled, *Lehman Caves . . . Its Human Story: From the Beginning Through 1965.* The study was updated by staff personnel at Lehman Caves National Monument in 1975. While the Trexler study provides data on the discovery and early development of the caves, its primary focus is on National Park Service administration of the national monument after 1933.

This chapter is not intended to duplicate the information in the Trexler study. Rather its purpose is to supplement the Trexler report by providing additional data on the history and development of Lehman Caves until the early 1930s, continuing friction between the Forest Service and National Park Service over administration of the caves during the 1930s, and management and operation of the national monument during the period 1965 to 1986.

OPERATION AND MANAGEMENT OF LEHMAN CAVES UNTIL NATIONAL MONUMENT DESIGNATION IN 1922

There is little documentation concerning the maintenance, development, and operation of Lehman Caves between the time of Absalom Lehman's death in 1891 and 1912 when the caves and adjacent lands were added to Nevada National Forest. Occasional visits to the caves were recorded in county newspapers, but there were no reports of further development.[1]

Lehman's 7-acre "Cave Ranche," on which Absalom never filed a homestead claim, was sold to Charles W. Rowland on November 20, 1895, for $700. This "homestead," as was mentioned earlier, did not include the caves. Thus, the cavern's entrance has always been in public ownership.

Rowland had purchased Lehman's 600-acre ranch on Lehman Creek in 1891. Thus, Rowland operated the two ranches until his death in January 1905, apparently planting additional trees in the orchard near the caves and perhaps constructing or enlarging the large pond or reservoir at the "Cave Ranche." After his death, Rowland's wife held the two ranches until 1911 when she sold them to P.M. "Doc" Baker. In October 1912 the caves and the lands surrounding Lehman's "homestead" were added to the Snake Division of Nevada National Forest. Actual federal supervision and operation of the cave was largely non-existent for some years, however, because the land of Baker and Saval below the caves controlled access to the caverns.[2]

The earliest Forest Service document to be found concerning Lehman Caves was an inspection report prepared by Ernest Winkler, Inspector of Grazing, on October 25, 1916. In his report Winkler described a three-hour tour of the cavern:

---

1. Examples of such recorded visits may be found in *White Pine Daily News*, July 28 and September 8 and 22, 1894, and March 22 and July 26, 1900.

2. Trexler, *Lehman Caves . . . Its Human Story*, p. 22.

The entrance to the cave is on an unassuming location that would not be noticeable were it not for the small lumber shack that is constructed over the hole. On entering the cave one goes down a flight of stairs probably fifteen feet, and reaches a landing. Again from here the stairs continue about ten feet, where the cave comes out into a comparatively large room.

The cave is reported to be between two and three miles long and in my judgment must be at least 150 feet under ground. The lime formations in the cave are certainly something remarkable. The stalactites and stalagmites are in all sizes and in most any number protruding from the roof and floor of the cave. They are indeed extremely beautiful. Mr. [E.C.] Adams, the man who is residing on the June 11 claim that joins the cave, has assumed charge of the place and keeps it under lock and key, and acts as guide for all who desire to go through the cave. He has done considerable work in constructing stairways, shooting out passage ways between different compartments and naming sections of the cave. Among the most interesting features of the cave is the compartment or room called the Music Hall. This consists of a comparatively narrow passageway perhaps 40 or 50 feet long, in which a lime formation has formed in stringers from the ceiling to the floor, perhaps 15 feet long. By taking your candle or knife and striking along these stringers a rather musical effect is secured. The tones being varied materially in accordance with the size of the stringers; the sound echoing and re-echoing through the cave to an extent that creates a very remarkable effect.

Another compartment called Congress Hall is a room probably 40 feet square in which the stalagmites have formed sort of pillars and all makes a rather grand and striking appearance. To my mind, the Jungles is the most remarkable sight in the entire cave. This consists of a room, probably 40 feet square and about the same height, with a small basin-like lake, probably 10 feet square in the bottom. All about this lake and gradually to the ceiling, are innumerable formations of all sizes and shapes, with frost-like whiteness, so that in the candle light it creates a most beautiful effect.

I spent about two and one-half or three hours in the cave and did not reach the end. Mr. Adams informed me that many people have visited the cave who have also visited the Mammoth Cave in Kentucky, and stated that while the Lehman cave is much smaller, it is even more beautiful. This cave, I believe, represents one of the most beautiful and striking natural wonders that it has been my pleasure to visit and any one visiting in that section will find it well worth while to go through this cave.[3]

In a separate report written two weeks later Winkler made further comment on Lehman Caves. He observed:

A small lumber shack has been constructed over the entrance to the Cave, probably about 8x10'. This is kept under lock by Mr. Adams, who resides . . . near the Cave. His house is about 150 feet to 200 feet from the entrance, and he acts as guide in escorting people through the Cave, charging a nominal fee for his services. The Cave, of course, is located at a remote place, where

---

3. Memorandum for the District Forester, Ernest Winkler, Inspector of Grazing, October 25, 1916, 1440 – Inspection, Year 1916, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830). During these years Adams apparently allowed people to tour the caves on their own or permitted local ranchers to lead groups if he was unable to do so. Personal interview with Virginia Eldridge, Baker, Nevada, September 15, 1988.

but comparatively few tourists are likely to visit. The population of this section consists primarily of ranchers and prospectors, and the place is about seventy-five or eighty miles from any of the important highways, Ely being the nearest point of importance.

Mr. Adams is very much interested in the Cave and seems to take great delight in exploring, improving and protecting it. From what I saw I would judge that there is yet considerable of the Cave that is unexplored and it is possible that if more passage ways were developed it would reveal considerable more area of similar beauty to that now accessible.

To secure the most beneficial use of this Cave by the public, it is necessary that some one be encouraged to give it attention. No one who is not reasonably familiar with the Cave could go through it and see its beauties without a guide. In fact, no one would be safe in attempting to go through without a guide, because of danger of being injured, as well as lost. There are a series of steps and ladders . . . that must be passed over and except these are kept intact, access to portions of the Cave would be shut off. Wood deteriorates rapidly in this Cave and consequently must be watched and replaced. If the beauties are to be protected, guides must have sufficient interest to prevent their destruction by breaking off for souvenirs, as well as through carelessness.[4]

Adams finally acquired formal title to the land (Homestead Entry Patent No. 724,083) in front of the caves on December 13, 1919, but his ownership was short-lived. Nathan Kiger and Clarence T. Rhodes became owners of the property in 1920, Rhodes ultimately becoming sole proprietor in 1923.[5]

CAMPAIGN TO HAVE LEHMAN CAVES DESIGNATED A NATIONAL MONUMENT

Following World War I automobile travel and tourism increased throughout the United States as the nation entered the decade of the "Roaring 20s." To facilitate this growth in travel large highway programs were initiated. One of the leaders in pressing for highway improvements in Nevada was Cada C. Boak, a Tonopah mining broker and a national director of the Grand Central Highway [U.S. Highway 50] Association.[6]

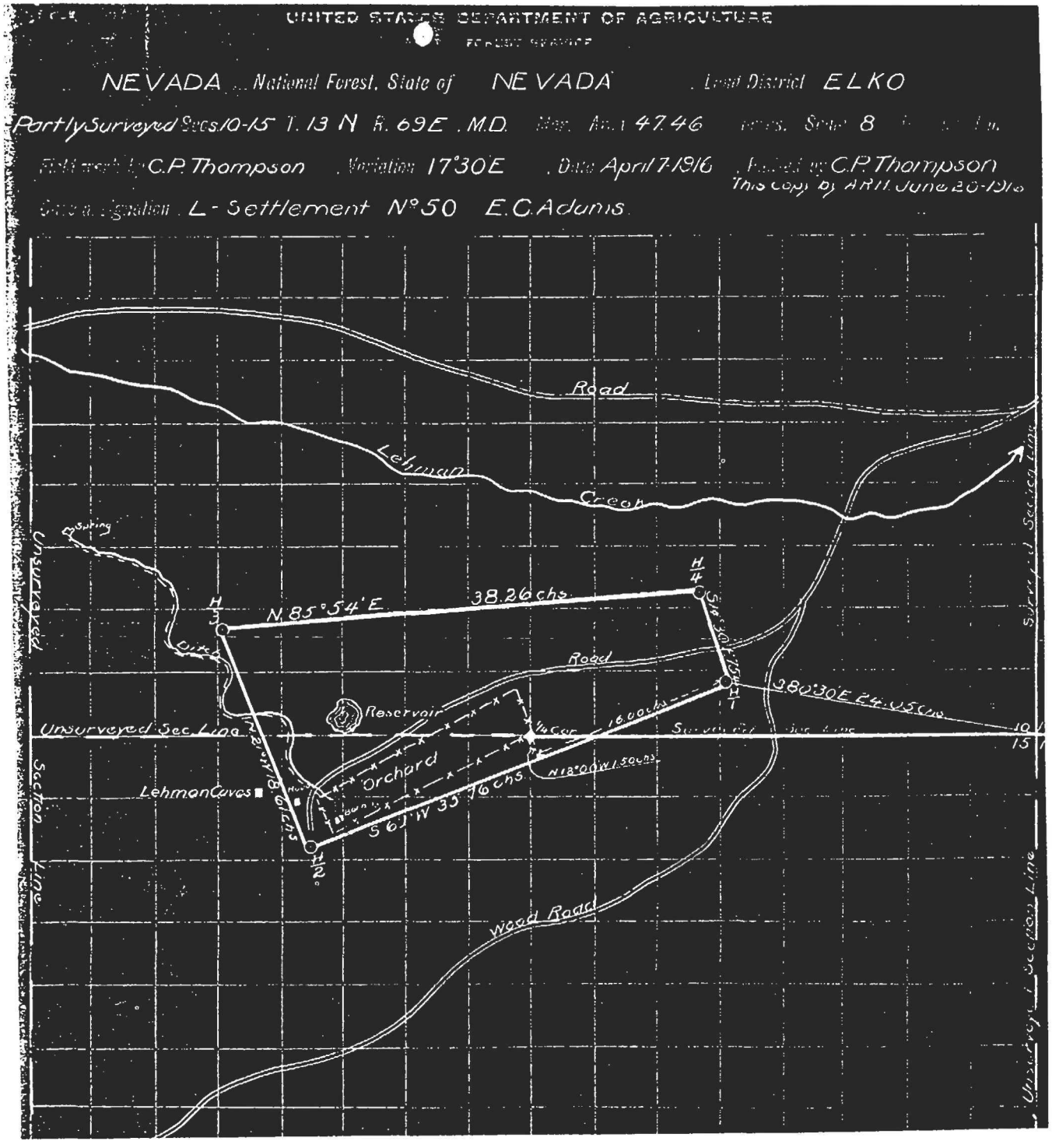
While the Grand Central Highway in eastern Nevada was under construction during the post-World War I years, Boak "heard vague rumors of caves." Through the help of his friend Victor C. Heikes of the U.S. Geological Survey and research in the records of White

---

4. Memorandum for the District Forester, Ernest Winkler, Inspector of Grazing, November 7, 1916, 1440 – Inspection, Year 1916, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

5. Trexler, *Lehman Caves . . . Its Human Story*, pp. 22-23. Although Adams did not acquire formal title to the land until December 13, 1919, he had the property, then consisting of 47.46 acres, surveyed on April 7, 1916. A copy of the survey may be seen on the following page.

6. Born on March 15, 1870, in Hamilton County, Iowa, Boak moved to Tonopah, Nevada, in 1904 and became a mining broker. During the next fifty years, he (1) was an active promoter of better highways for Nevada; (2) served as an assemblyman in the state legislature from Nye County for ten terms; (3) filled the position of secretary of the Tonopah Midway Mining Company; (4) organized the Tonopah Chamber of Commerce; and (5) was postmaster in Tonopah during the Herbert C. Hoover administration. Boak died in 1954 at the age of 84. Cada C. Boak, "Dedication of Lehman Caves National Monument: Ascent and Perilous Descent of Mount Wheeler, August 1922," *Nevada Historical Society Quarterly*, XVI (Summer 1973), 101.


UNITED STATES DEPARTMENT OF AGRICULTURE
NEVADA National Forest, State of NEVADA Land District ELKO
Partly Surveyed Secs. 10-15 T. 13 N R. 69 E. M.D. Mer. Area 47.46 Scale 8
C.P. Thompson Variation 17°30'E Date April 7-1916 C.P. Thompson
This copy by A.R.H. June 20-1916
L-Settlement N°50 E.C. Adams
Road
Lehman Creek
Spring
Unsurveyed
Unsurveyed Sec. Line
Section Line
Surveyed Section Line
Unsurveyed Section Line
N 85°54' E 38.26 chs.
Road
Reservoir
Orchard
Lehman Caves
S 61° W 35.76 chs.
S 80°30' E 24.05 chs.
16.00 chs.
N 12°00' W 1.50 chs.
Wood Road
H 1
H 2
H 3
H 4
10
15

Pine County, Boak found "the location of the old Lehman Ranch." After a "trip through mud and over only a trail to the old ranch," Boak found Lehman Caves.[7]

At the formal opening of the highway in eastern Nevada in July 1920 Boak, along with other dignitaries, spent three days at Baker and visited Lehman Caves which received considerable attention in the press. Because of the growing popularity of the cavern the Forest Service and White Pine County cooperated in constructing a road from the new highway at Baker to the cave later that year. It was noted that the cave promised "to become a very popular recreation area" and would "doubtless develop into a recreation problem of some extent within the next few years." Thus, the road was "badly needed" to open the area to visitor use.[8]

In June 1921 Boak and photographer E.W. Blair returned to Lehman Caves for further exploration and to take photographs for publicity purposes. Following that trip Boak wrote to his friend Victor C. Heikes in Salt Lake City:

> It may interest you to know that I have just returned from a five days trip to the Lehman Cave near Baker. . . . I have been preparing for this trip ever since last fall, and took with me a very elaborate Magnesium lighting outfit, and took a great number of photographs practically of all explored portions of the Caves. Messrs. Rhodes and Geiger at the caves have been showing people through such portions of the caves as are more easy of access using nothing but candles. I took several Five hundred candle power gasoline lanterns with me, and made frequent quite lengthy illuminations with magnesium. I am convinced that this was the first time that anyone has ever seen the caves under favorable lighting conditions. I noticed that Mr. Geiger himself was as greatly interested in seeing the caves under those conditions as I was myself.
>
> The caves as a whole far surpass my expectations and are certainly most beautiful. They are very extensive, and I believe when fully explored and a little more work done so as to make additional chambers and caverns easy of access, that they will rank with any of the better known caves in the United States.

Boak concluded his letter:

> Adequate steps should be taken immediately to have this cave created a National Monument. Trans-continental travel between Salt Lake City and Ely, Nev. should be routed by the way of Baker instead of Cobre as at present. These caves are but six miles off the main route, they should be placed at the disposal of the tourist.[9]

Heikes forwarded the Boak letter to the Director of the U.S. Geological Survey who in turn submitted it to Arno B. Cammerer, Acting Director of the National Park Service. On June 22 Cammerer responded to Boak by observing that the account of his "visit to Lehman Cave near Baker, White Pine County, Nevada, together with the suggestion that this cave

---

7. Boak to Davis, November 24, 1923, Cada C. Boak Collection, Nevada Historical Society, Reno.

8. Memorandum for District Forester, C.B. Morse, Assistant District Forester, June 8, 1921, 1440 – Inspection, Year 1921, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830), and Trexler, *Lehman Caves . . . Its Human Story*, p. 88.

9. Boak to Heikes, June 7, 1922, Central Files, Monuments, Lehman Cave, 1921-32, Record Group 79, Records of the National Park Service, National Archives and Records Administration, Washington, D.C.

is worthy of being reserved as a national monument, is very interesting." Cammerer elaborated further:

> We note that you have in mind preparing a paper on this Cave and that you have made photographs showing its interior. We would appreciate receiving a copy of this paper and photographs in order that we might consider the desirability of recommending that it be reserved as a national monument and also a sketch map showing its location in reference to the highway between Salt Lake City and Ely, Nevada, and the town of Baker.[10]

In his annual report for 1921 NPS Director Stephen T. Mather made mention of efforts to have Lehman Caves established as a national monument. The report noted:

> Attention of the service was directed to the advisability of reserving the Lehman Cave, near Baker, Nev., as a national monument. It is reported this cave is very extensive, and that when a little more work is done to make additional chambers and caverns easy and safe of access it will rank with any of the better-known caves in the United States. Lehman Cave is 6 miles off the main traveled auto highway between Salt Lake City, Utah, and Ely, Nev.
>
> No inspection of the cave has been made by park officers.[11]

Several months later on September 15, 1921, Boak sent photographs, maps, and a "manuscript" describing the caves to Stephen T. Mather, Director of the National Park Service and recommending that a three square mile area be set aside as a national monument. Included were a set of 48 "flashlight photographs" showing "portions of the interior ornamentation and decoration of the Caves." The manuscript, which was about to be published by an eastern magazine, provided "a brief geological summary, and the possible extent of these caves."

Boak also included a road map showing the main auto highways between Salt Lake City and the Pacific Coast. He noted:

> This map shows the location of Mt. Wheeler and the little town of Baker on the Grand Central Highway connecting Salt Lake City with Ely, Nevada. Until quite recently all transcontinental travel was compelled to follow the route of the Lincoln Highway between those two points, the route of which traversed for a long distance the southern end of the Great American Desert in Utah. That portion of the Lincoln Highway, owing to the soft, deep and drifting sand, has become almost impassible, and the Grand Central Highway which keeps farther south and follows the ridge of higher ground crossing Utah, has been completed and is being used very extensively in preference to the original route. This Grand Central Route is also favored for the reason that it follows the route of the Arrowhead Trail for quite a distance south from Salt Lake before branching off to the west.

Boak also included a detailed map of the Snake Division of Nevada National Forest given to him by Forest Ranger Graham S. Quate. Regarding this map, he observed:

---

10. Cammerer to Boak, June 22, 1921, Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C.

11. *Report of the Director of the National Park Service to the Secretary of the Interior for the Fiscal Year Ended June 30, 1921, and the Travel Season 1921* (Washington, Government Printing Office, 1921), p. 53.

> The entrance to the Cave is in the N.E. corner of the N.W. 1/4 of the N.W. quarter of Section 15, T. 13 N. R. 69 E. M D B & M. The entrance to the Cave is upon the public domain of the U.S., and so far as I was able to judge without making an underground survey, the Cave as far as exploited is also on the public domain of the U.S. There is patented farming and ranch land lying to the east and extending to within perhaps 15 or 20 rods of the entrance to the Caves. The Caves proper seem to lie northerly, southerly and westerly from their entrance, and it would be my opinion that their general course would be westerly and southwesterly. I discovered in Baker Creek Canyon, in Section 21, a large, open fissure in the limestone which is quite apt to prove to be another entrance to these Caves. The Caves have not been explored beyond the line of least resistance in that one general route, and I am confident from geological conditions existing, that a few well placed shots of dynamite would open up connections with other routes and levels fully as extensive as those explored.

In conclusion, Boak urged Mather "to take speedy steps to have these Caves created a National Monument, and preserved for the nature loving people of the U.S." He recommended

> that all unappropriated lands within Sections 8, 9, 10, 15, 16, 17, 20, 21 and 22 . . . be set aside for that purpose. The mountain slope is liberally timbered with Juniper and Pinyon Pine, and Lehman and Baker Creeks are attractive, torrential mountain streams affording the best of Trout fishing.
>
> I have traveled and am familiar with many of the better known Caves in the U.S. I give it as my opinion that there are none as beautiful as these. Other caves which have been thoroughly opened up, and explored are more extensive, but I have no doubt but that with thorough exploration, many more miles of underground passages are here to be thrown open. The Caves are so situated on the route of the long desert drive between Salt Lake and the Coast, as to form a veritable Oasis for rest and recreation for the desert-worn, transcontinental tourist.[12]

Several days after writing to Mather, Boak informed Senator Tasker L. Oddie of Nevada, his friend and fellow cave promoter, what he had done. Now everything, according to Boak, depended upon the recommendations of the National Park Service to the President. He noted that the three square mile area was the minimum amount of land that would be acceptable and that the designated ground was "worthless save for grazing, and not very good for that as it is on the Mountain slope." One point in favor of the proposed monument was

> that the Lincoln Highway between Salt Lake and Ely is being deserted very rapidly by the tourist travel, in favor of the Grand Central Highway which branches off from the Arrowhead Trail south of Salt Lake, and follows the ridge of high ground across Utah, avoiding all the sand, and coming into Ely via Osceola. This Grand Central Highway passes within six miles of the Caves; the

---

12. Boak to Mather, September 15, 1921, Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C. Boak sent a duplicate set of these materials and enlarged photographs to President Warren G. Harding.

road from the Highway to Baker is a boulevard and the balance of the distance is all high gear driving.[13]

On October 3 Senator Oddie wrote to Mather in support of Boak's recommendations for Lehman Caves. He commented that he had known "Boak for a along time" and found him to be "a man of the highest character, ability and integrity." Oddie indicated his personal "interest in seeing this great natural wonder of our State made accessible to tourists and others who would be interested and educated by an opportunity to visit them."[14]

After reviewing the information submitted by Boak and Oddie, National Park Service officials reacted favorably but noted the cavern was located within Nevada National Forest and thus was under the jurisdiction of the U.S. Forest Service. On October 28 Acting NPS Director Cammerer sent the materials to Chief Forester W.B. Greeley of the U.S. Forest Service for his recommendation. He observed that judging "from the photographs, the formations in these caves must be very beautiful and the caves extremely interesting."[15]

By late November 1921 the Forest Service had reviewed and approved Boak's recommendations for establishing a Lehman Caves National Monument. The area of the proposed monument, however, was reduced from three square miles to one square mile, because of the "matter and limitations of appropriations" and the opposition of area ranchers who demanded "a free passage up the creeks to grazing lands above." Boak reluctantly supported the Forest Service recommendation in a letter to Forest Supervisor McQueen on December 1:

> I agree with you fully that the one thing most important just now is the creation of the Monument with the least possible opposition; -and for the present at least, to concentrate the attention of the public so far as possible, upon this one cave. It is also quite possible that an over ambitious policy might tend to defeat the whole undertaking. It is therefore no doubt best to favor the smaller segregation and make more certain the success of our undertaking.[16]

In mid-December 1921 Secretary of Agriculture Henry C. Wallace, an Iowan who had long acquaintance with Boak, approved the recommendation to set aside Lehman Caves as a national monument. On December 14 Boak wrote to a friend in Berkeley, California, that the matter was

> now in the hands of other Cabinet officers, and will no doubt go to President Harding for his Proclamation, creating it a National Monument, in a few weeks. I have put this through without assistance from any source, and am quite naturally gratified over the favorable action the Government is taking....
>
> Just now, you can explore it [the cave] for about a mile, in your dress suite and silk hat and not get them soiled. It is clean as a palace. If you have traveled extensively, I can best describe it to you by drawing comparisons. The Great

---

13. Boak to Oddie, September 21, 1921, Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C.

14. Oddie to Mather, October 3, 1921, Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C.

15. Cammerer to Greeley, October 28, 1921, Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C.

16. Boak to McQueen, December 1, 1921, Vertical Files, Great Basin National Park.

> Mammoth Caves, of Ky., are like a great big, overgrown, unpainted, unkempt dilapidated BARN, as compared to a magnificent marble palace, when compared with these Nevada Caves. Many caves are very much more extensive, but none that I have seen can hold a candle to them from standpoint of profune ornamentation, and beauty. The Luray Caverns of Virginia are the nearest to being in the same class with our Nevada caves.[17]

ESTABLISHMENT OF LEHMAN CAVES NATIONAL MONUMENT

On January 24, 1922, Lehman Caves National Monument was established by a proclamation (Proclamation No. 1618; 42 Stat. 2260) signed by President Warren G. Harding. Under the authority of the American Antiquities Act of 1906, the proclamation declared the caves to be "of unusual scientific interest and importance" and that "the public interests will be promoted by reserving these caves with as much land as may be necessary for the proper protection thereof, as a National Monument." The proclamation went on to state that there

> are hereby reserved from all forms of appropriation under the public land laws, subject to all prior valid adverse claims, and set apart as a National Monument, all tracts of land in the State of Nevada shown as the Lehman Caves National Monument on the diagram forming a part hereof.
>
> The reservation made by this proclamation is not intended to prevent the use of the lands for National Forest purposes under the proclamation establishing the Nevada National Forest, and the two reservations shall both be effective on the land withdrawn but by the National Monument hereby established shall be the dominant reservation and any use of the land which interferes with its preservation or protection as a National Monument is hereby forbidden.
>
> Warning is hereby given to all unauthorized persons not to appropriate, injure, deface, remove, or destroy any feature of this National Monument, or to locate or settle on any of the lands reserved by this proclamation.

The diagram attached to the proclamation indicated that the monument area consisted of 593.03 acres, considerably less than had been recommended by Boak. A homestead entry (Survey No. 149), comprising 46.97 acres, was located within the perimeter of the monument. The diagram also showed the old and new roads connecting the monument with the town of Baker and the "Entrance to Lehman Natural Cave."[18]

Upon establishment Lehman Caves National Monument was administered by the U.S. Forest Service under "Uniform Rules and Regulations" adopted by the Secretaries of the Interior, Agriculture, and War on December 28, 1906. These regulations had been prescribed to carry out the provisions of the American Antiquities Act of 1906.[19]

---

17. Boak to Ames, December 14, 1921, Boak Collection, Nevada Historical Society, Reno.

18. Lehman Caves National Monument – By the President of the United States of America, A Proclamation [No. 1618 – Jan. 24, 1922 – 42 Stat. 2260], in U.S. Department of the Interior, National Park Service, *Proclamations and Orders Relating to the National Park Service Up to January 1, 1945* (Washington, Government Printing Office, 1947), pp. 227-28. A copy of the proclamation and diagram may be seen in Appendix Z.

19. Copies of the American Antiquities Act of 1906 and the "Uniform Rules and Regulations" may be seen in Appendix AA.

ADMINISTRATION OF LEHMAN CAVES NATIONAL MONUMENT UNDER THE U.S. FOREST SERVICE: 1922-1933

The U.S. Forest Service publicized the new national monument in its March 1922 issue of *American Forestry*. The article noted that for "twenty-five years these caves have been known locally, and for some time individuals have been trying to gain control of them." The action of President Harding, however, retained "them safely for all the people" and prevented "the destruction of the many objects of scenic and scientific value." Lehman Caves was the eleventh national monument to be established in a National Forest and the first in Nevada.[20]

Dedication ceremonies for Lehman Caves National Monument were first planned for June 27, later to be postponed until July 4 and finally August 6. The reason for the postponements was the desire of the Forest Service to coordinate the dedication with a meeting of the Farm Bureau in Baker and thus hopefully secure that agency's support for its plans for the cavern.

While plans for the dedication were being finalized, Boak wrote to Forest Supervisor Alexander McQueen suggesting the name of the national monument be changed from Lehman Caves to Roosevelt Caverns or Roosevelt Grottoes. On July 17 McQueen wrote to Boak, rejecting the name change. His reasons for doing so were based on conversations with several of the older settlers in the vicinity. McQueen stated that

> while they feel it is possible that the caves would secure some advantage in the way of advertising in connection with the Roosevelt Midland Trail highway, they are more or less opposed to the idea, giving as their reasons that this cave was discovered and developed practically to its present state by Mr. Lehman, who spent considerable time and means in opening up the cave and making it possible for the public to view it and that it has been known as Lehman Cave for the past forty odd years; that a considerable amount of advertising has resulted from the visits to the caves by people from all parts of the country, which would be sacrificed.

When Boak arrived for the dedication, McQueen wanted to obtain the benefit of his "ideas as to the proper administration of these caves and also to talk over" the "possibility of arriving at a definite plan for securing funds with which to develop the caves."[21]

On August 2, 1922, four days before the dedication, the *Tonopah Daily Times* published a copyrighted article by Boak entitled, "Lehman Caves – One of the World's Wonders Found in Nevada for Future Generations." The article, which would later be revised and printed as a brochure entitled, "Lehman Caves: The Wonder Under World," described the cavern and its surroundings in embellished rhetoric:

> Arriving at Lehman caves, six miles west of Baker . . . on the Grand Central highway and 66 miles southeast of the latter city, we park our cars 'neath pines and cedar, by running water clear as crystal, fed by the snow-clad peaks of Mount Wheeler, 13,047 feet, locally known as "Mount Jeff Davis," the highest and one of the most majestic peaks wholly within the confines of Nevada. The

---

20. "Lehman Caves National Monument, *American Forestry*, XXVIII (March 1922), 140.

21. McQueen to Boak, July 17, 1922, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539) and *Ely Daily Times*, June 23, 1922.

caves are in a light gray and white limestone on the eastern slope and near the base of the mountain, at an elevation of 7,200 feet. . . .

The setting is one to enthuse and exhilarate the lover of nature and this big out-of-doors, --nor are we doomed to enshroud our spirits in gloom as we plunge into those underground palaces fashioned by that sculptor whose hand has never wearied and whose fancy has known no bound; for truly the light of day ne'er shone on scenes more sublimely beautiful or entrancingly fantastic and grand than are here locked from the despoiling influences of the outer world.

A good auto road is completed from the highway to the caves, where is found a pleasant camping ground. Good trout fishing is to be had, and a saddle trail is being built to the summit of Mount Wheeler (13,047 feet), for the benefit of those who wish to avail themselves of the magnificent view had from its lofty height, through the clear desert atmosphere.[22]

On August 6, 1922, the dedication ceremonies were attended by some 500 people "at the little park of cedars and pinions near the caves." A "level terrace had been graded out and built up on the slope for a stage, and a beautiful flagpole erected in its center." Forest Supervisor McQueen presided at the program, which featured the reading of congratulatory telegrams from Nevada Senators Tasker L. Oddie and Key Pittman, government department heads, members of the Nevada Supreme Court, Governor Emmet D. Boyle, and other state officials. Colonel James G. Scrugham, the Nevada State Engineer who would be elected Governor that November, gave the principal address, followed by a formal flag raising ceremony featuring Boak, a company of the American Legion, and the singing of "The Star Spangled Banner" by Mrs. Anthony Jurich of Ely. The crowd then toured the caves, 325 people passing through in one group. According to Boak, "we were so few and so scattered that all got lost, save the guide, and he was several hours rounding up his flock."

The dedication ceremonies were preceded by a dance in the basement of the Baker Hotel the night before and followed by a two-day ascent of Wheeler Peak by seven persons. The seven persons who used pack and saddle horses until they arrived "under the last steep pitch of the summit" were McQueen, Forest Rangers Graham S. Quate and C.R. Townsend, the latter's wife, Miss Reorich, and Boak and his wife.[23]

During the months following the dedication of Lehman Caves National Monument there was apparently confusion among some cave supporters as to whether the U.S. Forest Service or the National Park Service was administering the caves. For instance, Scrugham, the principal speaker at the dedication ceremonies, wrote to NPS Director Mather on September 21, 1922, requesting financial aid for Mr. and Mrs. Clarence T. Rhodes who had been designated by the Forest Service as the official custodians of the caves earlier in the year. Scrugham stated:

The development of the caves and care thereof has been handled in a most admirable manner by Mr. and Mrs. C.T. Rhodes, of Baker, Nevada. Mr. Rhodes advises me that in order to obtain money for their living expenses it is necessary for himself and wife to go to McGill, Nevada, to work during the winter. If there is any possible way to do so, I will ask that the National Park

---

22. *Tonopah Daily Times*, August 2, 1922, in Boak Collection, Nevada Historical Society, Reno. The aforementioned revised article was written on October 17, 1922. C.C. Boak, "Lehman Caves: The Wonder Under World," October 17, 1922, Special Collections Department, University Library, University of Nevada, Reno.

23. Boak, "Dedication of Lehman Caves National Monument," 100-11. The ascent of Wheeler Peak was described at length by Boak in this article.

> Service make a small appropriation for the care and some repair work at the caves during the winter months while Mr. and Mrs. Rhodes are away. If no one is left to guard the caves it is possible that vandals may do almost irreparable damage therein.
>
> I can personally testify to the splendid and unselfish work which has been done by Mr. and Mrs. Rhodes and sincerely trust that your department will be able to be of some assistance in the above mentioned matter. The Nevada Legislature does not meet until the spring of 1923, at which time it is proposed to ask for some State assistance to protect the caves and to pay for a caretaker therefor.

The National Park Service, for its part, forwarded the letter to the Forest Service.[24]

Lack of finances continued to plague the development and effective administration of the national monument during its early years. In November 1923, for instance, Boak wrote to a friend:

> The last session of the State Legislature made available through a "game preserve" appropriation, a little money which has been used in building cement stairways Etc. in the caves, and no doubt more funds will be available from time to time. The Government has completed an excellent highway to the caves, from Baker, and the caves are being visited by increasing numbers as they become better known.
>
> I have no doubt that only the smallest portion of the cave has as yet been explored; only the more easily accessible portions. An occasional narrow or low passage when widened will no doubt lead to additional miles of caverns equally as large and beautiful. But this will take money for exploration, and the government is slow with appropriations.[25]

While Governor Scrugham was attempting both to enlarge and improve the national monument, he encouraged the Rhodes' to donate the original opening of Lehman Caves to the State of Nevada. Thus, on October 20, 1924, they donated a parcel of their patented tract, 150 feet wide by 200 feet long, and containing 0.688 of an acre, to the state. The conveyance was later amended by a formal instrument dated December 14, 1926.[26]

The operation of Lehman Caves National Monument was described at length by Assistant District Forester R.E. Gery after an inspection on April 13-15, 1925. Since his visit four years before there had "been considerable improvement in the interior of the cave," and the entrance had "been inclosed by a small creditable looking building." The expenses for the improvements, consisting "of clearing the passages, constructing wooden steps, and the erection of the building at the entrance," had been paid for by the State of Nevada and Clarence T. Rhodes, the caretaker. The state had expended $500 for material and labor. Considerable additional improvements were necessary "as some of the planking is quite

---

24. Scrugham to Mather, September 21, 1922, and Cammerer to Scrugham, September 25, 1922, Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C.

25. Boak to Davis, November 24, 1923, Boak Collection, Nevada Historical Society, Reno.

26. Memorandum for the Director, March 25, 1944, A. van V. Dunn, Hydraulic Engineer, March 25, 1944, File No. 660-057, Part I, Lehman Caves National Monument, Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C.

rotten." Since Rhodes secured all the revenue from the cave and the business was growing, Gery felt he "should be expected to replace the rotten planking and otherwise maintain the improvements in the interior of the cave provided the revenue warrants this."

The state had constructed a cement swimming tank, measuring 20 x 40 feet, on the parcel deeded by Rhodes to the state. The state intended to install pipes for water heating purposes. Water for the tank would be secured from irrigation water for the Rhodes ranch, although Otto Meek, president of the Utah-Nevada Land and Livestock Company that had purchased the old Baker Ranch was disputing the water rights claimed by Rhodes.

The state was contemplating construction "of creditable combined kitchen and dining rooms" on the tract of land secured from Rhodes. The building would contain rest rooms, latrines, and dressing rooms underneath the dining room. Rhodes would have charge of the building and swimming pool and was "arranging for a public camp ground on his own land."

Gery described the existing Rhodes operation at Lehman Caves. Among other things he noted:

> The present building used as a kitchen is very much of a shack but the meals are generally served under a bough covered arbor in the open. Mrs. Rhodes is a very hard working woman, a good cook, and endeavors to please. Rhodes is somewhat of a boaster of the wild west type and is not an ideal man for the job. He and his wife have been at the cave for five years and until last winter were required to secure employment each winter to carry them through the following summer. Approximately $1,800 was secured from entrance fees last year. A charge of $1.00 per person is made for adults with special rates for children and large parties. He should be expected to keep a record of all receipts from the cave. The Supervisor informs me he does this and reports once a year. It is necessary on occasions to employ assistance in the way of guides, although the services of one guide besides Rhodes are always available. It is understood that this man depends almost entirely on tips. After five lean years Rhodes should be permitted to have at least two or three fat ones, if such is going to be the case, before any change is made. As long as he owns the little ranch and the water he is, however, the logical person to look after the cave.

According to Gery, Governor Scrugham had requested that the Forest Service provide "a shelter from the sun for automobiles as practically no shade is available among the small pinyon and juniper trees." Gery felt "that a shed 14 by 60 feet with metal top and siding on three sides should be constructed on Government land if money is ever available."

Gery also visited the Lehman, Baker, and Snake Creek drainages in the vicinity of Lehman Caves, commenting on their recreational potential. Concerning the Lehman Creek drainage, he noted:

> We rode up Lehman Creek as far as possible in a car and then walked until our way was blocked by snow. We were able to get within about 2-1/2 miles of the alleged lake. There is a fair camp site among some large yellow pine trees which may be reached in dry weather by automobile. I believe that the camp ground should be improved and a toilet, garbage pit, and possibly two combined tables and benches installed.

The assistant district forester argued against some of Governor Scrugham's expansive road-building plans for the area. His arguments were:

> The Governor proposes to construct a road from near the George S. Robinson ranch on the main highway to join the Forest boundary just east of the Cave expecting the Service to construct the remainder of the road. This would require construction of about 6.3 miles of road over the gravelly bench land and construction would be very simple and inexpensive. The Service would be expected to build .7 mile of road to the present Service road leading to the cave from the south and east at a point about .3 of a mile from the cave. The cost of the .7 mile would be about half of what it would cost to construct the 6.3 miles which the State proposes to construct. It is understood that the Supervisor has been given $1,000 to construct a road from the cave to connect with the Lehman Creek road and to improve the present road along the creek, thus saving considerable distance to persons desiring to go up Lehman Creek. It is suggested that an effort be made to induce the Governor to construct his road the entire distance to the cave with the understanding that the Service will construct the road from the cave to connect with the road up Lehman Creek. The Service is not especially interested in the Governor's new road as there is already one road to the cave.
>
> In my opinion it would be an entire waste of money to construct a road to Lake Teressa. It covers about 1-1/2 acres, has rocky shores, and is no way inviting. Such a road would be decidedly expensive. Nothing but cobble stones and slide rock would be encountered and there is no road material along the route. The grades would be out of reason even with ample switchbacks. It is not seen how grades of 20 per cent and over could be avoided although an engineer might find means of reducing the grades below this figure. Even if the road were constructed only the rara avis would travel over it.

Gery cryptically commented that he "went up Baker Creek past the celebrated sign writing as far as possible in a car and then walked some distance." Here he noted:

> The present camp grounds are among aspens which if not dead at the present time will be so in the near future. The aspen along this creek is gradually disappearing and with absolutely no reproduction. This may or may not be due to overgrazing. In any event the aspen will afford shade but for a short time and no improvements should be constructed at the two or three little aspen groves which have been used for camping purposes in the past. There is, however, a fair camp site among some cottonwoods and this camp ground should be improved within the next two years. Baker Creek is a favorite fishing stream although the fish are always small.

Snake Creek, according to Gery, had once been "the best fishing stream in the immediate surrounding country but last year it was practically dry." He went up the Snake Creek Road "to within 2-1/2 miles of the end" and made observations for camping sites and road problems. He observed

> two possible camp sites but they are so small it would hardly pay to improve them. At the head of the road the Supervisor informs me there is a very creditable camp site and this should be improved with toilets, garbage pit and combined tables and benches if the stream again reaches normal. On the day of our visit there was a good stream of water about 4 miles above the boundary while at the boundary and for some distance above the stream was completely dry.

> The 7 miles of road up the creek is not inviting to Fords. Almost the entire distance must be made in intermediate with a Dodge car and there are many short pitches that must be made in low. In view of the allotment made no attempt was made to secure proper grades. The work consisted principally of clearing with considerable rock work. One of the rock cribbings is about gone and considerable dirt is sluffing in from the upper side, making the road quite narrow. The Supervisor has sufficient maintenance money to improve the worst places but insufficient to clear the road of the sluffed material.[27]

During the summer of 1925 the State of Nevada completed various improvements on the 150- x 200-foot land parcel donated by Rhodes. Included were "a rather large kitchen and dining room in connection thereto sanitary toilets for both men and women and a suite of dressing rooms for both men and women." The pool was heated "with steam from a boiler." The state also

> constructed a pipe line from a ditch owned by Mr. Rhodes extending to the top of the hill immediately south of the Caves at which point a water tank was erected and this water system is used in connection with the State buildings for operating the toilets and furnishing water for other domestic use in connection with the buildings.[28]

In response to questions submitted by the district forester in Ogden in November 1925 Forest Supervisor Charles A. Beam explained the cost of operating Lehman Caves National Monument and the Forest Service arrangements for managing the site. No improvements had been "constructed exclusively for the direct benefit" of the monument, "although the Lehman Creek road extending from Baker, Nevada, to Lehmans Cave has a direct bearing upon the National Monument in that it furnishes good transportation facilities to and from the Caves." The 7-mile road had cost $4,099.85 for construction and maintenance to date. During 1925 the Lehman Caves Road was extended 3-1/2 miles up Lehman Creek "to a very desirable camp ground which will be used almost exclusively by tourists visiting the Cave and local residents for week end parties." The road construction had cost $8,121.48. Although both roads were largely outside the monument boundaries, each had "a direct connection with the Monument and perhaps the total cost of these projects should be considered as improvements to the Monument."

Beam stated further that "no exclusive time is devoted by either the Forest Ranger or the Forest Supervisor in the supervision" of the national monument. If a trip were made by either man to the monument, it was "made in connection with other duties so therefore, no time of either can be charged as being exclusively devoted to this project."

The national monument, according to Beam, had "not as yet yielded any revenue whatsoever to the Government." The terms of the special use permit granted to Rhodes as monument caretaker included:

> The caretaker is permitted under the terms of the special use permit to charge $1 per person for admittance to the cave and this sum he is allowed to retain as compensation for his duties as caretaker. During the season of 1921 only 80 visitors registered at the Caves where as to date for this calendar year 2,135 visitors have registered which shows a very material increase in popularity for

---

27. Memorandum for the District Forester, April 20, 1925, Vertical Files, Great Basin National Park.

28. Charles A. Beam, Forest Supervisor to District Forester, Ogden, Utah, March 12, 1926, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

this Monument. The terms of the special use permit further provide that where parties of 5 or more are admitted to pass through the caves at one time a special rate of $5 per party is the maximum amount which can be charged and also that no charge for children accompanied by their parents or guardians under the age of 12 years old will be made. The records of the caretaker show that to date he has received $1,700 for admission fees which would indicate that at least 435 persons have either been admitted free or taken care of by the stipulation governing fees to be charged to parties of more than 5.[29]

In January 1926 Forest Supervisor Beam "made a careful inspection of the Caves" and found that the "stairways and ladders are in a very good state of preservation." He noted that a "well constructed house" had been "placed over the entrance of the Cave, the door of which is kept locked at all times except when the Cave is being visited by tourists." This precaution was necessary "to prevent damage to the Cave by irresponsible persons."

To "properly handle the management of the Cave" during the summer months, it was necessary for Rhodes to hire at least one tour guide at his own expense. Since the fees Rhodes received had "never adequately paid him for his services," Beam recommended that the government "construct further necessary improvements and maintain the present improvements rather than place this responsibility upon the caretaker."[30]

After a tour of Lehman Caves during the fall of 1926, C.N. Woods, assistant district forester, made recommendations for the improvement of the cavern. The principal need at the cave, in his judgment, was "electric lights."[31]

The operation and maintenance of Lehman Caves National Monument during the 1920s were described in a lengthy letter from Mrs. Clarence T. (Beatrice) Rhodes to NPS Director Mather in August 1928. The letter stated that the Rhodes had been at the caves since 1920, working "a great deal toward improving and advertising" them. When they had come to the area in 1920 it had taken them ten days to find the caves on horseback as there were no roads. They were amazed at "their wondrous beauty, altho vandals at that time had destroyed & soiled it terribly." Mrs. Rhodes stated further:

> We bought the little homestead here at the mouth of the caves from an old fellow who had just proved upon it shortly and who turned people loose to do as they pleased. There was an old cabin here that had been built by Abner Lehman who discovered the caves yrs. before and squatted here, also a remnant of an old orchard planted by him & nothing else. Mr. Rhodes & I have worked like slaves here. We both guided in caves . . . & discovered points of interest to tourists. Candles were used for lights & we bought carbide lights which are still in use. Our first yr. here we had 48 visitors in 1921. We advertised and had pictures taken & literature distributed. We both worked at McGill winters cooking for 85 men hiring a man to stay here till (Nov. to) Apr. 1st – and then came home & worked the 2nd yr. We had 287 in caves – the

---

29. Charles A. Beam, Forest Supervisor to District Forester, Ogden, Utah, November 24, 1925, L – Boundaries, Nevada, 1911, Central Files, Monuments, Lehman Cave, 1921-32, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

30. *Ibid.*, March 12, 1926, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

31. Memorandum for the District Forester, C.N. Woods, Assistant District Forester, October 28, 1926, 1440 – Inspection, Year 1926, RG 95, National Archives and Records Administration, San Bruno (Accession No. 61-333/Location No. 88830).

3rd 700 and so on till we finally, with Gov. Scrughams good help, had 3800 visitors in 1924. The Gov. took a very active interest in the caves sending hundreds of visitors. For this he was severely criticized & lost all the votes in this section. This country was dead & off the map when we came here really – but these people resent our having built up their town which is 6 miles from here & instead of being grateful they are resentful & jealous.

Mrs. Rhodes went on to explain that she and her husband had faced "an uphill pull" at Lehman Caves. She observed:

During our 8 yrs. here we have built up a nice little resort here spending every cent we earned here for improvements and have a string of saddle horses for Mt. trip to Mt. Wheeler. Can accommodate about 50 to sleep and have a nice dance pavilion & this season have built several log cabins & a larger lodge for spring & fall as the season here gets so cold early in Oct. & have a larger fire place to make it comfortable for guests. Now in order to do this Mr. Rhodes took a position & went to Central America so we could get enough money to build it up and make it saleable as I had a nervous breakdown 3 yrs. ago and cannot endure as I did.

During the 1928 season Mrs. Rhodes handled the Lehman Caves resort alone "with very able help as guides." A party had come to the property several times during the year, indicating interest in its purchase. She elaborated:

We have in the 8 yrs. here spent $14,000 for our improvements, including our ranch 12 acres under cultivation, cows, horses, & ranch equipment – for the resort, beds, bedding, & tents, cabins, lamps for caves, etc. 3 years ago we spent $5,000 improving & this yr. 5,000 more. I am asking $22,000 for the place which has 46 acres. 12 acres fenced in orchard & alfalfa besides about 2 acres in the resort. The rest is as yet in primitive state. Our land is outside the National Monument & free from any encumbrances. This party led me to believe he was going to buy, & went so far as to take a trip to Arizona, Los Angeles, and other points to interest friends of his etc. In the meantime he has been undermining me & my interests & I have heard from very good authority he is trying to evade buying my property and intending to lease the Govt. property around me and get custody of the caves. My property is about 50 yds from Cave entrance. This man has no money himself but is promoting this proposition. We have had about 1200 visitors here to date this season and travel will not increase until the roads are improved and the proper connections made from here to the Zion National Park via Milford, Ut. I am anxious to see people who can afford to make this into a big resort etc. take it over, but I cannot see how they can justifiably ignore my personal right as the creator of the project and owing to cost of everything here and shipping cost on things sent into the place they can easily check up our expenditures in 8 years.

Accordingly, Mrs. Rhodes asked NPS Director Mather for financial and legal help. She noted:

I am soliciting your good graces and protection and merely ask for fair play. The man who is promoting this project is a public parasite himself and merely trying to work himself into a soft job. Up to date we have had nothing but worry & hard work & after we pay the staff it takes here in season & all our bills my husband has had to work out every winter. That is why he has taken this position in C.A. and will be gone a yr. at least. As it costs so much to live here & develop the property I am respectfully submitting Senator Trasker

> Oddie's name as a reference of our worthiness & also can send several others who can justify my statements.[32]

In response to this letter Acting NPS Director Cammerer informed Mrs. Rhodes that he did "not see how there is any possibility of Mr. Mather or anybody in the Park Service cooperating in anything having to do with Lehman Caves." The national monument was administered by the U.S. Forest Service and thus "entirely outside our jurisdiction." He promised, however, that should the Park Service "hear of anybody who would be interested in purchasing a homestead such as yours we would be glad to refer them to you."[33]

During the spring and summer of 1928 plans went forward for the expansion of the "Lehman Caves Resort." At least ten log cabins and "a large garage to store automobiles" were constructed under contract by Charles Davis to accommodate the growing number of overnight tourists to the caves. The logs for the cabins reportedly came from the Baker Creek drainage, and the roofing boards were apparently "cannibalized" from the deteriorating flumes of the Osceola Ditch.[34]

Visitation to Lehman Caves remained steady in 1928 and 1929 and then declined during the early 1930s as a result of the Great Depression. From January to October 10, 1928, there were a total of 1,447 visitors. It was noted that most of the visitors "were through tourists who were either going to or coming from the Pacific Coast." Few local people visited the cave, because "practically everyone here has visited the cave during former seasons." Mrs. Rhodes reported to Forest Service officials, however, that "she had a very excellent season because of patronage of local residents coming to the caves and occupying her house-keeping cabins and tents and holding week-end parties and dances there." According to her, business at the cave was "far superior to any previous season." Forest Service officials looked forward to an increase of visitation in 1929, because the Lincoln Highway from McGill to Wendover would be completed. This "Eastern connection with a transcontinental highway" was expected to "bring a flood of tourists through this part of the State, many of whom will visit Lehman Cave while passing through."[35]

From November 11, 1928, to October 1, 1929, some 1,552 persons toured Lehman Caves, according to Mrs. Rhodes, who again operated the "resort" by herself. Three pupil groups toured the caves that year from Baker School (20 students on March 31), Aurum School (10 students in May), and Ruth High School (30 students in June). The students from the

---

32. Mrs. C.T. Rhodes to Mather, [ca. August 1, 1928], Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C. Mrs. Rhodes enclosed a brochure on Lehman Caves and several poems she had written, copies of which may be seen in the Nevada Historical Society, Reno.

33. Cammerer to Mrs. C.T. Rhodes, August 4, 1928, Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C.

34. *Ely Record*, March 2, 1928, and Memorandum, Regional Director, Western Region to Acting Assistant Director, Park Historic Preservation, March 12, 1975, H34, National Survey and National Landmarks, and Parts I and II, Historic Structures Report, Rhodes Cabin, April 8 and November 1, 1965, H30, Historic Preservation, Rhodes Cabin, Central Files, Great Basin National Park. One of the ten cabins remains near the present Great Basin National Park Visitor Center and is known as the Rhodes Cabin. During the 1930s the structure was used as living quarters by National Park Service personnel and still later for storage. During 1966-68 the cabin was moved to its present location, restored, and placed on a concrete foundation. In 1975 the Rhodes Cabin was placed on the National Register of Historic Places.

35. C.A. Beam, Forest Supervisor to District Forester, Ogden, Utah, October 12, 1928, and enclosure, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539). Monthly visitation statistics for 1928 were: January – 2; February – 4; March – 46; April – 79; May – 53; June – 311; July – 388; August – 330; September – 185; and October through the 10th – 9).

Baker and Aurum schools paid 25 cents each for their tours, while those from Ruth paid 50 cents.[36]

During the period from October 6, 1929, to March 6, 1930, a total of 134 (98 adults, 36 children) people toured the cave. The tour fees were $1 for adults and 50 cents for children. Mr. and Mrs. Rhodes were gone during this period, and the tours were given by unnamed "caretakers."

Some 1,133 persons toured the cave between March 6 and October 6, 1930. The cave visitors consisted of 942 adults (full fare), 84 children (half fare), 26 Boy Scouts and 75 Girl Scouts (quarter fare), and 6 escorts (half fare). In addition, free complimentary tours were given to twelve Forest Service personnel, six university "heads" from the United States, and one from Japan.

In addition to submitting these visitation totals to Forest Service officials on October 12, 1930, Mrs. Rhodes informed them of cave improvements that had been completed. She observed:

> During years of 1929 and 1930 have reinforced steps all thru caves. Also put new ones in as needed during different intervals through season. We do this from time to time, thus keeping them safe and easy of access at all times, as we find it unwise to tear up any of stairs during tourist season. We will go over entire cave thoroughly during winter months and put all stairs in good shape for coming season.[37]

The following year on October 27, 1931, Forest Supervisor C.A. Beam informed his superiors that 1,048 visitors had toured Lehman Caves between October 15, 1930, and October 15, 1931. He commented further:

> Caves are in safe and good repair, steps all reinforced since close of last season. A few minor things will be gone over during winter, and left in good shape for coming season.[38]

As a result of the Great Depression, the Rhodes were forced in 1932 to readjust their resort rates downward "to conform to present-day conditions." A copy of the rates for the housekeeping cabins (furnished and unfurnished), deluxe cabins, meals, and saddle and pack horses may be seen on the following page. Despite the rate adjustments, however, only 532 persons toured the cave during 1932.[39]

---

36. *Ibid.*, September 26, 1929, and enclosure, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

37. Mrs. C.T. Rhodes to C.A. Beam, Forest Supervisor, October 12, 1930, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

38. Memorandum for Regional Forester, C.A. Beam, Forest Supervisor, October 27, 1931, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

39. C.J. Olsen, Forest Supervisor to Regional Forester, July 21, 1932, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539). In 1932-33 Rhodes had a Forest Service permit to graze 22 horses on national forest lands.

LEHMAN CAVES RESORT RATES
July 1932

CABINS:
For H.K. Cabins fully furnished with dishes, stoves, cut wood, Linens, etc.:

	Per night	Per week	Per month
2 people	$2.00	$ 8.00	$25.00
3 "	2.50	10.00	30.00
4 "	3.00	12.00	35.00

De Luxe Cabins-
Sleeping only:

for one	1.50	(also weekly and monthly
" two	2.00	rates, where board is
" three	2.50	purchased, commencing
" four	3.00	@ $3.50 per week for 1)

Unfurnished 2-room H.K. Cabins, incl. 1 bed, for 1 or 2 – $1.00 per night
mattress, stove wood, etc., for 3 or 4 – 1.50 per night
but no other furniture:

Same as above but 1-room with 2 single beds $1.00 per night.

MEALS:
.35¢, .60¢, .75¢, and $1.00, to suit all tastes and purses.
Pure, fresh milk and cream on hand at all times

SADDLE & PACK HORSES:
To guests at the Resort, horse and saddle, without guide, $2.50 per day.
Pack horse – 2.00 " "
Special trip to Mt. Wheeler, highest peak in Nevada, 13,047 ft. above sea level, including lunch and guide service – $5.00 per person.

Excellent fishing may be enjoyed in Baker and Lehman Creeks.

All roads leading to Lehman Caves are in excellent condition, either from Utah by way of Beaver and the Arrowhead Trail, or from the other direction by way of Ely, Nevada.

U.S. FOREST SERVICE PLANS FOR LEHMAN CAVES NATIONAL MONUMENT: 1930-1933

During 1930 the U.S. Forest Service began to develop plans for the modernization and improvement of Lehman Caves as "a unit in the attractions of the southern Utah area of scenic wonders." The plans were initiated after Chief Forester Robert Y. Stuart visited the caves during the summer of 1930 and "expressed an opinion that, if they [Rhodes' property] were given to the government modern lighting and improvements would be installed at once and a federal road built from Ely through Baker, to the caves, and on to Beaver, Utah." Congressman Samuel S. Arentz of Nevada indicated that he "could get federal money to follow the Chief Forester's plans if the lands [Rhodes' property] were deeded to the government." Accordingly, in early February 1931 the White Pine County Chamber of Mines and Commerce took a 90-day option to purchase the Rhodes' property, buildings, horses, and other equipment for $15,000. After acquisition the county planned to deed the property to the State of Nevada which in turn would hand it over to the federal government. The chamber established a Lehman Caves Development Committee to handle all receipts from the sale and make expenditures of funds received for maintenance and development of the caves and nearby scenic attractions.[40]

Steps were taken to have the Nevada state legislature enact the required legislation to enable the county commissioners to issue bonds for the purchase of the Rhodes' property and deed the lands to the federal government. Commenting on these plans, the *Ely Daily Times* stated on February 13, 1931:

> The caves themselves have already been designated as a national monument, but owing to the fact that the property surrounding them is privately owned, the government has not included them in its improvement program of national scenic attractions. But with the culmination of present plans there can be no question about the government spending a considerable sum of money in improvements of the caves and in building good roads to connect them with other national monuments, parks and places of recreational interest.[41]

To publicize its efforts the White Pine Chamber of Mines and Commerce published a brochure entitled, "Nevada's Caveland," for distribution by the Board of Commissioners of White Pine County. The pamphlet, which described the Lehman Caves and its vicinity in glowing terms, stated:

> This district might well be designated Nevada's Caveland. To the southeast, where the sagebrush plains merge into majestic Mount Wheeler, also known to many as Mt. Jeff Davis, the highest peak entirely with the state, providing the picturesque contrast of wooded slopes and mountain streams looming against a background of rangeland, are Lehman Caves, Nevada's most interesting attraction. Here Nature has done double duty, creating scenic splendors and building beauty beneath the surface, as well as above.
>
> The vicinity of Lehman Caves is a veritable museum of natural attractions and places of interest. A trip can be made to the summit of Mt. Wheeler, mostly by the horseback route, on steeds to be obtained at the Cave resort. From this point there is a view of magnificent distances, into several of the adjoining

---

40. *Salt Lake Tribune*, February 8, 1931, and Olsen to Pittman, November 11, 1933, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

41. *Ely Daily Times*, February 13, 1931.

> states, and the glaciers and glacier fed lakes are to be visited. There are ancient Indian rock writings and the remains of the dwellings of a pre-historic race, for the scientist, rippling brooks for the fisherman and game in season for the hunter. Near to, and possibly connected with Lehman Cave, although not yet fully explored, is another cave containing pictograph rock writings and signs, which show, according to some authorities, that a Mongol civilization existed in this country prior to the Indians.[42]

It is interesting to note that Senator Oddie again attempted to involve the National Park Service in the negotiations to acquire the Rhodes' property. In response to his overtures, NPS Director Albright stated on March 13, 1931:

> As you know Lehman Caves National Monument is under the jurisdiction of the Forest Service, Department of Agriculture. I do not know just what to recommend. However, I feel quite certain that Major Stuart, Chief Forester, would be willing to accept the lands offered and suggest that you write to Major Stuart transmitting the letter from the White Pine Chamber of Mines and Commerce. The land referred to seems to be very vital to the proper development of the Lehman Caves National Monument and certainly should be added.[43]

Although the legislature authorized White Pine County to issue bonds for purchase of the Rhodes' property on March 19, 1931, "economic conditions" associated with the Great Depression prevented the county from issuing the bonds and purchasing the land. Finally in late July 1933, the White Pine County commissioners authorized "the issue of $15,000 worth of bonds for purchase of the land owned by C.T. Rhodes at the mouth of Lehman Caves." When they passed the authorization measure the county commissioners stated that they did so believing that "this county would receive in revenue many times more from the purchase price of the land, both from the tourists that would be drawn to the caves, and from wages which would be spent in road development in the vicinity of the caves." An agreement for the purchase of the property was negotiated with the Rhodes on July 27.[44]

The Rhodes' land, together with the water rights to Cave Spring, was formally deeded to White Pine County on September 13, 1933. Five days later the property was conveyed to the federal government. At the time of the transfer the White Pine County commissioners assumed responsibility for having the 150- x 200-foot plot (0.668 acres) at the entrance to the cave transferred from the State of Nevada to the federal government at the next session of the state legislature.[45] On March 27, 1935, the state legislature authorized the Nevada State Board of Control to convey formally the 150- x 200-foot plot to the federal government under authority contained in Assembly Bill 218. Thus, the federal government finally had control of all lands within the one square mile area originally designated as

---

42. "Nevada's Caveland," Published by White Pine Chamber of Mines and Commerce for the Board of Commissioners of White Pine County, Ely, Nevada [1931], Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C.

43. Albright to Oddie, March 13, 1931, Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C.

44. *Ely Record*, July 30, 1933. Included in the purchase were 46 carbide lights and 85 pounds of carbide. C.A. Beam, Chairman, Lehman Cave Development Committee to C.T. Rhodes, December 2, 1933, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

45. C.J. Olsen, Forest Supervisor to Regional Forester, September 28, 1933; L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

Lehman Caves National Monument.[46] The agreement relating to purchase of the Rhodes' property that was signed on July 27, 1933, occurred during the period between issuance of Executive Order 6166 transferring administration of Lehman Caves National Monument to the National Park Service and the time the NPS took immediate charge of the land. Thus, the Forest Service took steps for the administration of the monument during the interim period before the Park Service assumed charge. Clarence T. Rhodes was appointed as temporary custodian and granted permission to collect fees of $1.00 for adults and 35 cents for children to provide tours through the cave. The Rhodes' also continued to operate the resort cabins and food service facilities.[47]

In a letter to Vail Pittman, who was the editor of the *Ely Daily Times* and a brother to Nevada Senator Key Pittman, on November 11, 1933, Forest Supervisor Olsen elaborated on the Forest Service plans for Lehman Caves "up to October 1st, at which time it was supposed that the Park Service would take charge" of the national monument. After it had appeared quite certain that White Pine County would purchase the Rhodes' property, the Forest Service, according to Olsen, "went ahead with the plans for the exclusive development of the Cave and the surrounding scenic attractions." The plans, some of which would be continued by the National Park Service, were:

1. Topographic map was made of the cultural and physical features, which included a type map of the ground covered and a survey of the proposed hydro-electric plant. The map was finished and the stakes were set for the hydro-electric plant.

2. Survey was made of the proposed pipe line for water for use at and near the cave. The stakes were set and a profile made of the survey. The survey was complete in every detail.

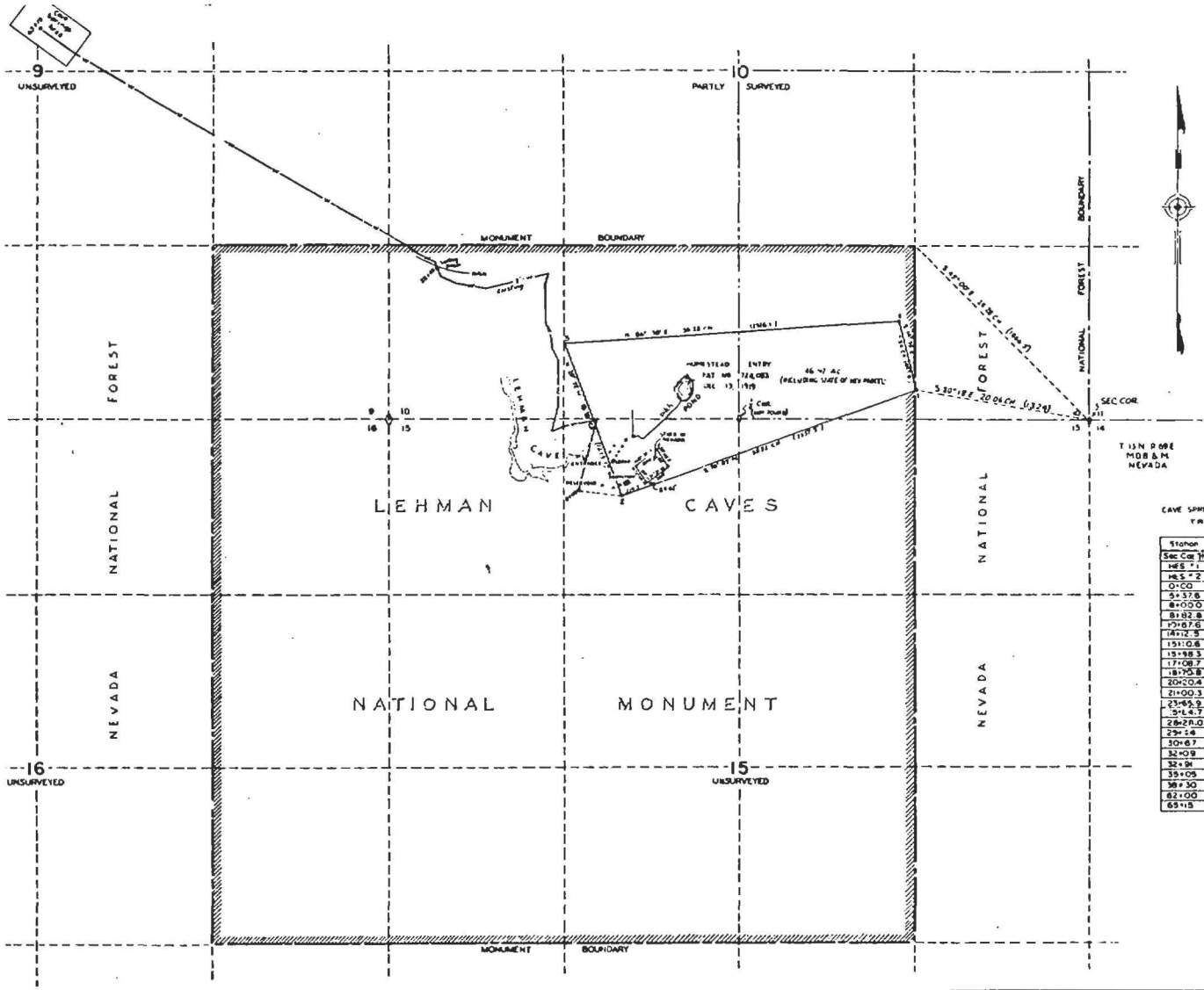
3. A survey was made of the telephone line from the Robison ranch to the Baker Ranger Station; stakes were set and it was anticipated to continue the survey to the cave. Telephone wire and all materials except posts and poles, which we would obtain locally, were available.

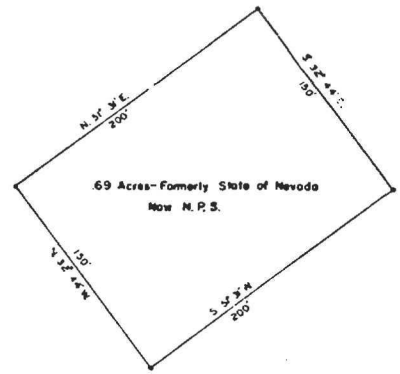
4. Survey had previously been made of the interior of Lehman Cave and the plans were quite thoroughly developed as to the kind of work that would be done inside of the cave, which included a better passage-way through the cave. It was proposed to make an outlet at the far end of the cave so that people going in the cave would not necessarily have to go back the same way they came in. It was proposed to light the cave and bring out the details of the beautiful formations therein. Several thousand pounds of suitable blasting powder was on hand.

---

46. Charles West, Acting Secretary of the Interior to Secretary of Agriculture, November 15, 1935, Central Files, 1907-36, File 12-1, Part I, Parks, Reservations and Antiquities, National Monuments, Lehman Caves, Record Group 48, Records of the Office of the Secretary of the Interior, National Archives and Records Administration, Washington, D.C., and "History of Lehman Caves National Monument," n.d., Vertical Files, Great Basin National Park. Confusion over these land transactions continued until 1945. For further data on the continuing legal questions relating to the transactions see Trexler, *Lehman Caves . . . Its Human Story*, pp. 31-33, and Lands, Buildings, Roads & Trails, Lands (General), Lehman Caves National Monument, File No. 601, Part I, and Siler to Richey and Vint, March 18, 1947, File No. 630, Roads, Lehman Caves National Monument, Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C. A copy of a map showing these transactions may be seen on the following page.

47. C.J. Olsen, Forest Supervisor, By Ernest R. Hill, Acting to P.P. Patraw, April 26, 1934, Vertical Files, Great Basin National Park.





This area designated as Deed I-A containing 69 acres acquired from State of Nevada by Deed dated July 18, 1945, recorded in Deed Book 141, Pages 578, 579.

CAVE SPRING & WATERLINE LOCATION
TRAVERSE TABLE

Station	Course	Distance
Sec Cor 11		
MES #1	N. 80° 18' W.	1324'
MES #2	S. 70° 07' W.	2357.5'
0+00	N. 83° 48' W.	323.2'
5+37.6	N 13° 43' E	537.6'
8+00.0	S 80° 48' W	262.4
8+82.8	S 65° 13' W	82.8'
10+67.6	N 13° 21' E.	184.8
14+12.5	N. 0° 15' E.	344.9
15+10.6	N. 24° 08' W.	98.1'
15+98.3	N. 6° 10' W.	87.7'
17+08.7	N. 22° 12' W.	110.4'
18+95.8	N. 2° 11' W.	187.1'
20+20.4	N. 4° 09' E.	149.6
21+00.3	N 10° 5' W	79.9
23+65.9	S. 76° 13' W.	265.6'
25+84.7	S. 78° 27' W.	218.8'
28+28.0	N. 82° 24' W.	243.3'
29+14	N. 63° 55' W.	116'
30+67	N. 21° 18' W.	125
32+09	N. 65° 50' W.	142'
32+91	N. 49° 09' W.	82'
35+05	N. 59° 58' W.	214'
38+30	N. 80° 20' W.	325
62+00	N. 80° 04' W.	2370'
65+15	N. 54° 33' W.	315'

Stadia ——— Chained Distances

NOTES: Homesteady Entry bring by White Pine County for presentation to Government
Information as to boundaries of private property obtained from deed supplied by County Attorney Jan. 19, 1934.

HALF-SIZE REPRODUCTION

scale 1" = 400'

RECOMMENDED ..... DATE .....
RECOMMENDED ..... DATE .....
RECOMMENDED ..... DATE .....
APPROVED ..... DATE .....

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
LANDS DIVISION
REGIONAL OFFICE

REGION THREE
PCP No.
SHEET 1 OF 1
DRAWING NO. NM-LC 7101
DATE

LAND STATUS MAP
LEHMAN CAVES NATIONAL MONUMENT

NT OF DRAWING NM-LC-5303
ARQUERO CHECKED BY A.HELL

Electric blasting caps were available and machinery, such as air compressor and blasting machines, etc., were available.

5. It was proposed to construct a truck trail up into the head of Baker Creek and one up into the head of Lehman Creek to Estelle Lake. This would make it possible to get to the top of Mount Wheeler very easily. . . . We had planned to continue the Lehman Cavern Development Committee, which would handle all receipts from the cave and make expenditures of the money received for the maintenance and development of the cave and surrounding scenic attractions.[48]

When the Rhodes' left Lehman Caves in September 1933, the Forest Service appointed Otto W. Nielsen as temporary custodian of the national monument. He was paid with funds from a Civil Works Administration allotment.[49]

While employing Nielsen at the cave the Forest Service made provisional arrangements with Mr. and Mrs. Frank Natusch to act as custodians of the national monument and provide visitor services beginning the following spring. These arrangements were described by Forest Supervisor Olsen in a memorandum dated September 18, 1933:

> Frank Natusch has been working for us on ECF since about June 1st and has demonstrated his efficiency, loyalty, honesty and initiative, and it is, therefore, proposed to employ Frank Natusch as custodian of Lehman Cave, beginning in the spring of 1934. It is considered inadvisable to transfer Mr. Natusch to Lehman Cave this fall for the short remaining period since his services are badly needed here in Ely and because of the fact that he has been very successful in handling the work that he is responsible for. It is, therefore, proposed to hire someone to take over the custodianship of the Cave until such time as the ECW camp is transferred to Lehman Cave. Should this not happen it may be necessary later to transfer Frank Natusch to Lehman Cave as custodian. At the present time we do not contemplate keeping a man at Lehman cave year long.
>
> Lehman Cave is located some distance from hotel accommodations. There are no facilities for obtaining meals or rooms at either Garrison or Baker and it is, therefore, necessary that some temporary arrangement be made so as to be able to provide meals and lodging at Lehman Cave for the tourists that come to the Cave. According to Mr. Rhodes' report, there have been 612 people visit Lehman Cave up until the present time during 1933. When the transfer of land was made from Mr. Rhodes to White Pine County the hotel furnishings were not included. It is realized that we desire to have extensive changes in connection with the hotel and cabin accommodations at Lehman Cave and it is proposed to, if possible, eventually issue a permit to some responsible, reliable person for a hotel, store, etc. at the Cave. In the mean time, however, it is necessary that temporary arrangements be made so as to be able to accommodate the traveling public. It is, therefore, proposed to issue a free special use permit to Mrs. Frank Natusch for the hotel and cabins at Lehman Cave. Frank Natusch will act as custodian of the Cave and will also care for the buildings at the

---

48. Olsen to Pittman, November 11, 1933, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

49. C.J. Olsen, Forest Supervisor, By Ernest R. Hill, Acting to Patraw, April 26, 1934, Vertical Files, Great Basin National Park. In 1926 Neilson had moved to the Baker area to help the Bellander brothers herd sheep. By the early 1930s he was teaching school in Baker and serving part-time as a tour guide at Lehman Caves. Personal interview with Sunny Roberts, Baker, Nevada, September 17, 1988.

Cave and to recreational clean-up and patrol in Baker Creek and Lehman Creek. It is proposed to pay Frank Natusch $100 per month to act as custodian of the Cave. In order for us to be able to see that the public is taken care of it will be necessary for Frank Natusch and Mrs. Frank Natusch to purchase the hotel furnishings at the Cave, which Mr. Rhodes has offered for sale at $300.00. This includes piano, hotel range, steam table, chairs, tables, beds, cots, bedding, dishes, heating stoves, etc.[50]

TRANSFER OF ADMINISTRATION OF LEHMAN CAVES NATIONAL MONUMENT FROM THE U.S. FOREST SERVICE TO THE NATIONAL PARK SERVICE: 1933

Despite his protestations to the contrary, NPS Director Albright demonstrated considerable interest in Lehman Caves. In October 1931, for instance, he requested Roger W. Toll, the Superintendent of Yellowstone National Park who during off-seasons investigated proposed park and monument areas and boundary extensions, to visit Lehman Caves.[51] On November 5, 1931, Toll toured Lehman Caves and on February 18, 1932, submitted notes to Albright that he thought might "be of interest in connection with the caves administered by the National Park Service." In terms of accessibility, general characteristics, and visitation of the national monument, Toll noted:

> The road brings automobiles to within a 100 yards of the entrance to the caves.
>
> Visitors are taken on a trip of perhaps a mile in the cave. Practically the same route is retraced, making the total distance about two miles. These are "cave miles" and the actual distance is something less.
>
> The cave contains some interesting drip formations including columns, stalactites, varying in size from small, slender ones to others that are heavy and massive, "bacon rind" or "Navajo blanket" folds of varying tints, and onyx. There is a type of flat, palate-shaped formation that is unusual. Some of the stalactites are active and dripping water; others are dead. Many of the stalactites give a musical tone when struck, and this property is fully utilized by Mr. Rhodes, who guides most of the parties through the caves.
>
> The caves are fairly accessible and dry. There are a few low ceilings but no crawling is necessary. . . . The number of visitors in 1931 was 1048 to November. The admission charge is $1.00 per person. This does not make a very substantial income for Mr. and Mrs. Rhodes, but they take in about an equal amount from the meals and lodging furnished.

Toll went on to list the caves under "national control, in the order of importance of their natural features and use by the public." First on his list was Carlsbad Caverns which he described as "by far the best in formation, size, display and convenience of access." Second on his list, however, was Lehman Caves. He observed that Lehman "probably takes second place in variety and interest of formation, but it is not lighted nor well developed." Because "of its remote location" and distance from "heavily travelled highways," it had few visitors. In view of the Park Service policy "that the outstanding

---

50. Memorandum, C.J. Olsen, Forest Supervisor, September 18, 1933, and Olsen to Parker, December 14, 1933, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

51. Moskey to Toll, October 16, 1931, Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C.

example of a particular type of scenery should be a national park," Toll felt that "Carlsbad Cavern is the only cave needed or desireable for the park system."[52] Toll's report was forwarded to Superintendent Thomas Boles of Carlsbad Caverns National Park for his perusal and then returned to the Washington Office for filing.

On June 10, 1933, President Franklin D. Roosevelt signed Executive Order 6166, providing for a major reorganization of the federal government. Among other things, the order, which would become effective in sixty days, stated:

> All functions of administration of public buildings, reservations, national parks, national monuments, and national cemeteries are consolidated in an Office of National Parks, Buildings, and Reservations in the Department of the Interior, at the head of which shall be a Director of National Parks, Buildings, and Reservations; except that where deemed desirable there may be excluded from this provision any public building or reservation which is chiefly employed as a facility in the work of a particular agency.

Thus, all national monuments, including Lehman Caves, were transferred to the renamed National Park Service.[53]

Forest Service officials were unhappy with the transfer of the national monuments from its jurisdiction. One of the monuments the bureau attempted to keep under its administration was Lehman Caves. On September 8, 1933, the regional forester in Ogden submitted information to the Chief Forester in Washington, arguing that Forest Service administration of the monument was more economical than would be the case under another federal bureau. Among other things, he noted:

> Up until the present time, the cave has been handled by the Forest Service through an agreement with a reliable special use permittee, and it is through the efforts of the Forest Service that Lehman Cave has been protected from exploitation and preserved in its natural condition.
>
> The ranger in charge of the district lives at Baker, six miles distant from the cave, and the Forest Supervisor's headquarters are located at Ely, approximately 68 miles from the cave, and frequent inspections are made in connection with the handling of other Forest Service business. The cave is centrally located with respect to the Baker ranger district, which includes the Snake Division and the Mt. Moraja Division of the Nevada National Forest, thus making supervision by the ranger and the supervisor very economical.
>
> The Forest Service now has plans under way for further development. It is proposed to construct a hydro-electric plant of sufficient size to illuminate the cave and the grounds and surrounding administrative buildings. Great care has been and is being exercised for the lighting and future excavation of the cave. It is proposed to construct a pipe line to divert water for domestic use and

---

52. Toll to the Director, National Park Service, February 18, 1932, Central Files, Monuments, Lehman Cave, 1921-32, RG 79, National Archives and Records Administration, Washington, D.C.

53. U.S. Congress, House, *Message from the President of the United States Transmitting an Executive Order for Certain Regroupings, Consolidations, Transfers, and Abolitions of Executive Agencies and Functions Thereof*, H. Doc. 69, 73d Cong., 1st Sess., 1933, pp. 2-3. Further data on this executive order may be found in U.S. Department of the Interior, National Park Service, *Administrative History: Expansion of the National Park Service in the 1930s*, by Harlan D. Unrau and G. Frank Williss, September 1983, pp. 43-74.

culinary purposes at the cave. Campgrounds at the cave and on Lehman Creek and Baker Creek nearby will be improved.

In Baker Creek and Lehman Creek there are rather extensive stands of merchantable timber and it is planned to develop the truck trail system so as to utilize the timber resources without destroying in the least any of the natural beauty.

The cave must have yearlong supervision.

Administration by the Forest Service will be more economical and practicable than by a separate organization. In fact it would seem unreasonable to set up another Federal organization to handle this cave.[54]

By October 1933 the Forest Service had apparently given up the struggle to retain Lehman Caves under its administration. On October 14, for instance, Forest Supervisor Olsen informed the White Pine Chamber of Mines and Commerce:

> Undoubtedly you have heard by this time that the National Park Service will assume charge of Lehman Cave in the near future. This means that there will be a complete change in administration. The National Park Service, as you know, is part of the Interior Department; and we will therefore lose control of Lehman Cave. It will be the responsibility of the National Park Service to develop the Cave; and while I feel very sorry about losing control of the Cave since the Forest Service was very much interested in the development of it, at the same time, I think the National Park Service will be in a good position to properly develop and handle the Cave.[55]

The National Park Service assumed administration of Lehman Caves National Monument on December 2, 1933. The monument was placed under the supervision of the Preston P. Patraw, superintendent of Zion National Park. Otto W. Neilsen, who was already serving as temporary custodian of the monument under the Forest Service, was continued in that position. On April 27, 1934, he was formally assigned "as park ranger in charge" of the monument on a temporary basis. (Copies of two maps of Lehman Caves National Monument prepared in 1934 may be seen on the following pages).[56]

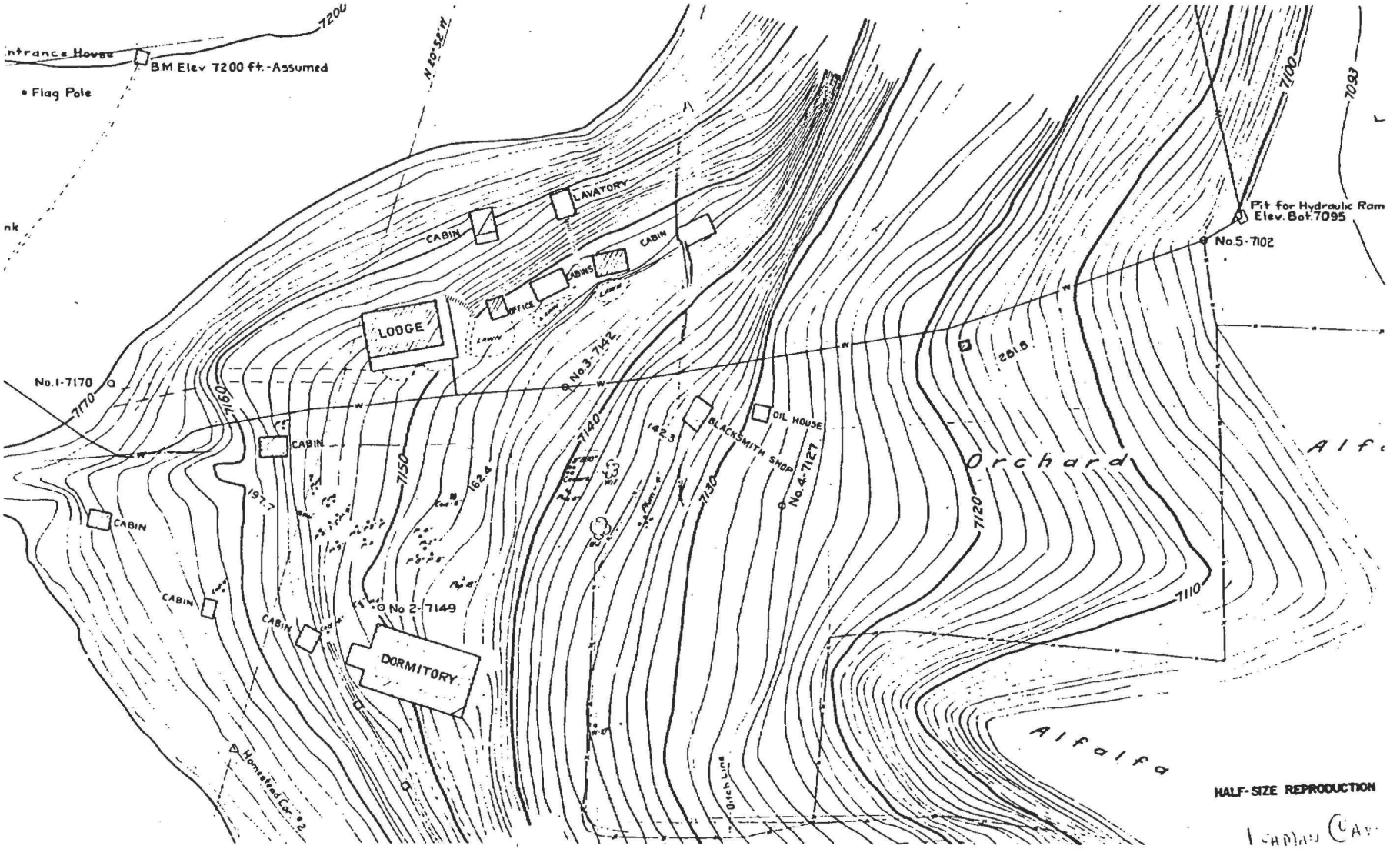
---

54. Regional Forester to The Forester, Washington, D.C., September 18, 1933, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

55. Olsen to White Pine Chamber of Commerce and Mines, October 14, 1933, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

56. U.S. Department of the Interior, National Park Service, *Centennial Edition, National Park Service Officials, March 1, 1972*, p. 81, and "Report on Lehman Caves Nat'l. Monument, Nevada, Civil Works Projects," by Thomas C. Parker, Assistant Superintendent, N.P.B. & R, December 14th, 1933, Central Files, 1933-49, National Monuments, and Patraw to The Director, April 23, 1934, Central Files, 1933-49, Lehman Caves National Monument, General, Part I, RG 79, National Archives and Records Administration, Washington, D.C.


LEHMAN CAVES NATIONAL MONUMENT
HEADQUARTERS AREA
VICINITY MAP
Pond
Clump Cottonwood
Clump of Willows
Cave Entrance
Cabin
Lodge
Flag Pole
Dormitory
Reservoir
To Spring
To Ely
To Baker
LEGEND
Building
Road
Water Line
Contour
N.P.S. Monument
Fireplace
Caves
Tree Symbols
Apr Apricot
Ap Apple
Pe Pearn
P Pine
J Juniper
Bl Box Elder
Cot Cottonwood
Map Maple
Pr Pear
HALF-SIZE REPRODUCTION
UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF ENGINEERING
PREPARED BY REGIONAL OFFICE
TOPOGRAPHICAL MAP
HEADQUARTERS AREA
LEHMAN CAVES NAT'L. MON.
REGION IV
SHEET 1 of 1
DRAWING No
NM-LC
5300


ntrance House
BM Elev 7200 ft.-Assumed
• Flag Pole
7200
N 29° 52' W
LAVATORY
CABIN
CABINS
OFFICE
LODGE
CABIN
Pit for Hydraulic Ram
Elev. Bot. 7095
No.5-7102
7100
7093
No.1-7170
7170
7160
No.3-7142
261.8
CABIN
7150
162.4
7140
142.3
BLACKSMITH SHOP
OIL HOUSE
No.4-7127
7130
Orchard
7120
7110
CABIN
CABIN
CABIN
197.7
No.2-7149
DORMITORY
Homestead Cor. #2
Ditch Line
Alfalfa
HALF-SIZE REPRODUCTION

CONTINUING FRICTION BETWEEN THE NATIONAL PARK SERVICE AND THE U.S. FOREST SERVICE OVER ADMINISTRATION OF LEHMAN CAVES

Despite the relative cooperation exhibited by National Park Service and U.S. Forest Service officials during the transfer of administration of Lehman Caves National Monument in 1933, friction continued between the two bureaus over questions of development and operation of the caves and associated visitor services. County newspapers and political interest groups were drawn into the controversy. The Forest Service apparently attempted to utilize the debate in an effort to regain administrative oversight of the national monument.

Bureau correspondence indicates that Forest Service officials were hopeful that Lehman Caves would be returned to their administrative jurisdiction. On March 21, 1935, for instance, Regional Forester R.H. Rutledge informed the Chief Forester of developments at the caves and recommended a course of action to be taken by the bureau pending the outcome of deliberations by the National Resources Board as to the ultimate issue of administrative jurisdiction of the national monument:

> The Executive Order of June 10, 1933, has temporarily at least given the National Park Service administration of the National Monument. On September 18, 1934, White Pine county deeded to the U.S. Department of Agriculture the above-mentioned private land amounting to 46.97 acres which is within the boundaries of the National Monument. Mr. Kneipp's L Donations, Lehman Cave, letter of July 19 was explained to the White Pine county commissioners, so that both this office and the Supervisor's office made it plain to the county commissioners that the Department of the Interior now has jurisdiction over the cave. Nevertheless, the county commissioners insisted on having a deed made to the Department of Agriculture. The land was not part of the withdrawal for the National Monument as it was privately owned at the time and, of course, has not been so designated since.
>
> A side camp of the Park Service C.C.C. camp has been working on the cave this winter and is now building a road partly on the tract of land deeded to the Department of Agriculture; in fact, there cannot be proper development of the cave without getting onto this deeded land.
>
> The question arises as to whether we should issue a special use permit to the Park Service for this land or just allow the situation to remain in status quo until a more definite and logical policy regarding the administration of National Monuments has been agreed upon. This National Monument is 110 miles from a railroad and 250 miles from the nearest National Park headquarters. Yet it is an integral part of the Nevada National Forest with a National Forest Ranger headquarters within five miles.
>
> This case is a good illustration of the illogical situations resulting from the interpretation placed on Executive Order of June 10, 1933.
>
> The National Resources Board may be interested since this strengthens their argument . . . to the effect that the major breakdown of the responsibility between administrative agencies should be areal rather than functional. "In the development and carrying out of plans for specific areas there should be centralized responsibility for all the various functional aspects of land administration, which should rest with the agency responsible for the major form of land use in the area."

> My recommendation is that the Park Service be allowed to develop the area but that there be no official release of jurisdiction over this area by the Forest Service, pending the outcome of the recommendations of the National Resources Board.[57]

Other Forest Service officials also sent messages to the Chief Forester regarding their irritation that Lehman Caves had been transferred to the National Park Service. One such memorandum was sent by Associate Forester E.A. Sherman on March 28, 1935. He observed:

> Here is a beautiful example of the absurdity of following functional instead of areal lines in organization. . . . It would take an Executive Order to add the donated lands (46.97 acres) to the National Monument; an Executive Order could also place the National Monument under the jurisdiction of the Department of Agriculture, thereby bringing the Monument under the same jurisdiction desired by the donors and to a jurisdiction to which the donors refused to deed the lands, would, to say the least, be doing violence to the amenities which usually accompany the acceptance of a gift.[58]

The controversy flared in July 1936 when the White Pine Chamber of Commerce and Mines passed a resolution deploring the "lack of accommodations for tourists and other visitors at the Lehman Caves National Monument." The resolution contended that such conditions detracted from travel to the cave and that White Pine County had purchased the Rhodes property with the understanding that accommodations and improvements would be made at the monument. Thus, the chamber requested "that the National Park Service through its proper officers" take "the necessary steps, at the earliest possible time, to provide the improvements requested."[59]

On August 29, 1936, *Ely Daily Times* editor Vail Pittman printed an editorial that fueled the controversy further. The editorial, entitled "Neglect of Lehman Caves," ended with the warning that if the Park Service did not make improvements at the caves the people of White Pine County would petition their congressional representatives to transfer administration of the national monument from the Park Service back to the U.S. Forest Service. The editorial, which caused the Park Service increased concern because Vail and Senator Key Pittman were brothers, stated:

> The people of this county are becoming very much upset on account of what has happened to Lehman caves. Several years ago White Pine county purchased some private lands adjoining the caves at a price of $15,000. This land was deeded to the federal government with the idea that the caves would be made a national monument and developed in keeping with their merit. The county commissioners were led to believe this by a very high official in the Park Service. Unfortunately, this splendid man and highly efficient government official has been dead for several years. Otherwise the situation would not likely be as it is today at the Caves.

---

57. R.H. Rutledge, Regional Forester to The Forester, March 21, 1935, Vertical Files, Great Basin National Park.

58. Memorandum for The Forester, E.A. Sherman, Associate Forester, March 28, 1935, Vertical Files, Great Basin National Park.

59. George Doyle, Secretary, White Pine Chamber of Commerce & Mines to Cammerer, July 27, 1936, Central Files, 1933-49, National Monuments, Lehman Cave, Part 2, RG 79, National Archives and Records Administration, Washington, D.C.

> Before this private property was purchased and the caves were placed under the jurisdiction of the Park Service there were very good accommodations at the caves. A man and his wife were in charge, they had erected many log cabins. There were a dining room and a dance hall. Every consideration was shown guests who came from far and near. Compare this situation with existing conditions: Now there are no sleeping or eating accommodations, merely a guide provided by the Park Service to take visitors through the caves. Tourists arrive at the caves with the idea that a comfortable place will be found for sleeping and that good meals are available. They go away disgusted, and very naturally so.
>
> If the Park Service does not intend to develop the caves it is about time that the people of White Pine county petition our representatives in Congress to remove the caves from the jurisdiction of the Park Service and place them under the control of the Forest Service, which department of government has shown a deep interest in recreational projects in this state, and particularly in White Pine County.
>
> If the Park Service will not act we will seek relief from another source. The people will not longer tolerate this indifference and neglect.[60]

Some two weeks later, on September 14, 1936, Acting Regional Forester Olsen, who had been Forest Supervisor of Nevada National Forest in 1933 when Lehman Caves had been transferred to the Park Service, submitted the editorial to the Chief Forester in Washington. In a transmittal letter Olsen stated that it "is believed that you should have this information because it appears that the people of White Pine County are going to insist on some action."[61]

Editor Vail Pittman issued another broadside in the *Ely Daily Times* on October 8, criticizing the Park Service for its failure to make needed improvements at Lehman Caves and comparing Park Service and Forest Service activities in the vicinity. Pittman took the Park Service to task for its "shameful neglect" of the cave and alleged that the Park Service had no interest in its development.[62]

This second editorial received a speedy response from the Park Service. In a letter to Vail Pittman on October 17, Preston P. Patraw, the Superintendent of Zion and Bryce Canyon National Parks who had administrative oversight over Lehman Caves, attempted to explain the difficulties the Park Service had experienced in securing adequate funding for development of the national monument. The letter, which was printed in the *Ely Daily Times*, stated:

> Since the Monument was transferred to the jurisdiction of the National Park Service in 1933, some small improvements have been made. You will recall, perhaps, that in the winter of 1933-34 we operated a 50-man C.W.A. camp at the Monument, constructing a water storage reservoir, improving trails within the caves, attempting to eradicate the innumerable marring inscriptions and marks

---

60. Editorial, *Ely Daily Times*, August 29, 1936, in Notebook, "HNF History – Land Uses," Historical Files, USFS, Elko.

61. R.H. Rutledge, Regional Forester, By C.J. Olsen, Acting to Chief, Forest Service, September 14, 1936, Notebook, "HNF History – Land Uses," Historical Files, USFS, Elko.

62. Editorial, *Ely Daily Times*, October 8, 1936.

that had been placed on the walls and formations in years past, building a telephone line, and cleaning up the grounds. During the following winter we had a small C.C.C. crew at the Monument as a side camp from the State Park camp at Panaca, developing a public campground, parking area, and installing a water supply line.

A request was submitted for a full C.C.C. camp for the following summer (1935), but it was not granted, presumably for the reason that at the time the C.C.C. program was being curtailed.

At the present time I have an allotment of $9,000 from the regular National Park Service roads and trails appropriation for improvement work, and there is an engineering crew at the Monument now, making surveys for the improvement of the entrance road within the Monument, and of the entrance to the caves and the trails within the caves. As soon as the plans are completed and approved the construction work will be undertaken.

Another request for a C.C.C. camp to be established at the Monument next spring is now pending. The establishment of a W.P.A camp this winter has been under consideration, although so far the lack of available funds necessary for contributions to the project has been a stumbling block.

The National Park Service has in mind the needed developments, including electric illumination of the caves, road and trail improvements, campground improvement, tourist overnight facilities, comfort station, living quarters for administrative personnel, etc. That we have been unable yet to accomplish all the desirable things is regretted by us as much as by you and other interested citizens, and I wish to assure you that any apparent neglect is apparent only; that we are alive to the needs of the Monument, are much interested in having the desirable developments accomplished, and are only awaiting availability of funds or other means for accomplishing them.[63]

That same day Superintendent Patraw wrote to NPS Director Cammerer concerning the situation. He informed Cammerer that H. Donald Curry, Park Ranger in Charge at Lehman Caves, had discussed the editorials with Pittman and "thinks he cleared up a number of points on which Mr. Pittman had apparently been misinformed." Patraw quoted Curry further:

> I learned one thing – back of all Pittman's adverse and biased criticism is a conscious effort by officials in the Forest Service to stir up trouble in an effort to regain administration of the caves. I am certain of this, although no direct statement to that effect was made. Talking to a Times reporter who is a friend of mine I learned that this last tirade was precipitated by a long discussion with a Forest Service official. I am surprised at this, as on the surface these men have been anything but unfriendly.

Patraw questioned Curry's conclusions as his own "dealings with the Forest Service men at Ely" had been "friendly, cooperative and apparently straightforward." However, he promised to "attempt to discover whether there is an undercurrent of activity" at Ely. In any event, Patraw recommended that "it be well, not only because developments are needed

---

63. Patraw to Vail Pittman, October 17, 1936, Central Files, 1933-49, National Monuments, Lehman Cave, Part 2, RG 79, National Archives and Records Administration, Washington, D.C.

but also as a counter-irritant, to attempt a little more vigorously to obtain some means for constructing developments" at Lehman Caves.[64]

Forest Service machinations in the controversy are borne out in its internal bureau correspondence. On October 9, 1936, for instance, Regional Forester Rutledge informed the Chief Forester:

> On October 3, 4 and 5 Vail Pittman, brother to Senator Key Pittman, of Ely, Nevada, discussed the Lehman Caves National Monument with C.J. Olsen of this office. Vail Pittman is editor of the Ely Daily Times at Ely, Nevada and furnishes a lot of the information about Nevada for Senator Key Pittman and Senator Pat McCarran, and Congressman J.G. Scrugham, to request the Secretary of the Interior and/or the President to transfer Lehman Caves National Monument to the custody of the Forest Service, to be administered by the Nevada National Forest, and at the same time ask them to support the Forest Service in their request for appropriations for recreational development. The case will undoubtedly come to your attention in the near future.[65]

The intent of the Forest Service to reacquire administrative jurisdiction of Lehman Caves was described in vivid terms by Acting Regional Forester Olsen in a letter to the Forest Supervisor of Nevada National Forest on November 4, 1936. The letter stated:

> I have talked with Mr. Rutledge about the Lehman Caves situation. He is agreeable to promising the Ely people that we will develop a lodge and cabins and other needed facilities at the Lehman Caves National Monument, together with other needed recreational improvements in the general locality of the caves, provided the caves are transferred back to the Forest Service on a more or less permanent basis.
>
> It is ridiculous to think that the Government will continue to try to administer Lehman Caves by a separate organization when it is so far away and is within the exterior boundaries of the Nevada National Forest.
>
> If the monument is transferred back to the Forest Service it should be done in the near future so that we can plan developments for the entire area. Mount Wheeler, the highest peak in the State of Nevada, and Lehman Creek and Baker Creek, and the primitive area south toward Big Springs, holds out some recreational possibilities which have not yet been realized.
>
> When I left Ely after the deer hunt I understood Vail Pittman intended to go after Key and Jim Scrugham in an attempt to have the transfer made. We are all very much interested in the recreational development in and about the National Monument and it will never be fully correlated and properly developed until the monument is transferred to the Forest Service so that the development can go forward with Lehman Caves as a nucleus for the entire development.[66]

---

64. Patraw to The Director, October 17, 1936, Central Files, 1933-49, National Monuments, Lehman Cave, Part 2, RG 79, National Archives and Records Administration, Washington, D.C.

65. R.H. Rutledge, Regional Forester to Chief, Forest Service, October 9, 1936, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

66. A.R.F. to Forest Supervisor, Nevada, November 4, 1936, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

During the early 1940s Forest Service continued its efforts to have Lehman Caves National Monument transferred back to their jurisdiction. In February 1941, for instance, Acting Regional Forester Olsen issued a memorandum describing his attitude concerning the issue:

> After the President had transferred the Lehman Caves to the National Park Service and before the deed had been recorded in the name of the Department of Agriculture, the local people were consulted, at the request of the Washington Office, as to their desires. They were unanimous in their request that the land be transferred to the Department of Agriculture. I personally explained the whole thing to them and told them that this 40-acre tract was the controlling element in the use of the cave. The County Commissioners were insistent, however, upon having the transfer made to the Department of Agriculture.
>
> While I have not been to the cave for some time, I understand the Park Service has constructed some few buildings on the 40 acres, in addition to the impetus that was given to the developments before I left.
>
> There is no more reason for this small tract being under the National Park Service than there would be for the Forest Service to take over a similar tract in the middle of Yellowstone Park or any other park. It is not economical to the government.
>
> Park Service headquarters are located at Zions Park, and this small monument is more or less of a liability to them. It is my opinion that the thing to do with the whole monument is to transfer it back to the Forest Service to be handled as a part of the Nevada National Forest. The 40 acres and the water rights control the situation.
>
> I do not know what Supervisor Briggs' attitude might be, but I think from the angle of practical administration and economy in the expenditure of taxpayers' money, the cave should be transferred to the Forest Service.[67]

Several months later on May 23, 1941, Olsen reiterated his arguments that the Forest Service recommend transfer of Lehman Caves back to the Department of Agriculture. He criticized the Park Service for the "slowness" and "apparent apathy" it had shown in developing the cavern and visitor accommodations. However, his principal concern centered on transfer of the national monument to the Forest Service. He noted:

> It appears to be very poor economy for the government to have a small project of this kind under a separate department of the government. The headquarters of the National Park Service are at Boulder City, Nevada. The supervision of the cave was transferred to Boulder City only recently.
>
> There is a ranger station located at Baker, Nevada, only 7 or 8 miles from the Lehman Caves National Monument. This is a yearlong station, and since the ranger district is not a large one, the ranger could handle this job very well in connection with his other work and as a part of the natural unit over which he has supervision. Of course it would be necessary to have a custodian at the cave during the summer period. The proper arrangement would be to have a custodian whose wife would be able to serve meals for the people who visited the cave, with some help during the rush season. This would make it a paying

67. Memorandum for Lands, C.J. Olsen, Acting Regional Forester, February 25, 1941, Vertical Files, Great Basin National Park.

proposition for the custodian and would certainly increase the efficiency and decrease the cost of handling the project. The Forest Supervisor's headquarters are located at Ely only 75 miles away, which is also greatly in favor of the transfer of the monument to the Forest Service.

It is my opinion that there is no alternative for us but to recommend the transfer of the whole project to the Forest Service. As a matter of fact, practically all of the improvements constructed by the Park Service are on the 47 acres of land purchased by the White Pine County and transferred to the Department of Agriculture, and of course this is the reason the Park Service is so anxious to have this land transferred to them. At the present time this private land within the monument, as I understand it, has National Forest status.

The local people, including the present County Commissioners and the County Commissioners that were in the office at the time of the purchase, are very much in favor of transferring the project to the Forest Service. Since the local people have persistently and consistently demanded that the project be under the Forest Service, it certainly would raise some serious questions with them if we recommended the transfer of this land, in view of all the circumstances surrounding the case and especially because of the fact that it is a logical and integral part of the National Forest area and can without doubt be handled more economically and efficiently by the local Forest Supervisor and Forest Ranger.[68]

With American entry in World War II in December 1941 the issue of transferring the cavern back to the Forest Service was dropped. No documentation could be found relating to this issue after the end of the war.

MANAGEMENT AND OPERATION OF LEHMAN CAVES NATIONAL MONUMENT: 1965-1986

The purpose of this section is to provide perspective on the history of Lehman Caves National Monument from 1965 to 1986. In the former year Trexler completed his administrative history of the monument, and in the latter the monument was absorbed into Great Basin National Park. During these two decades significant changes and trends occurred at the monument.

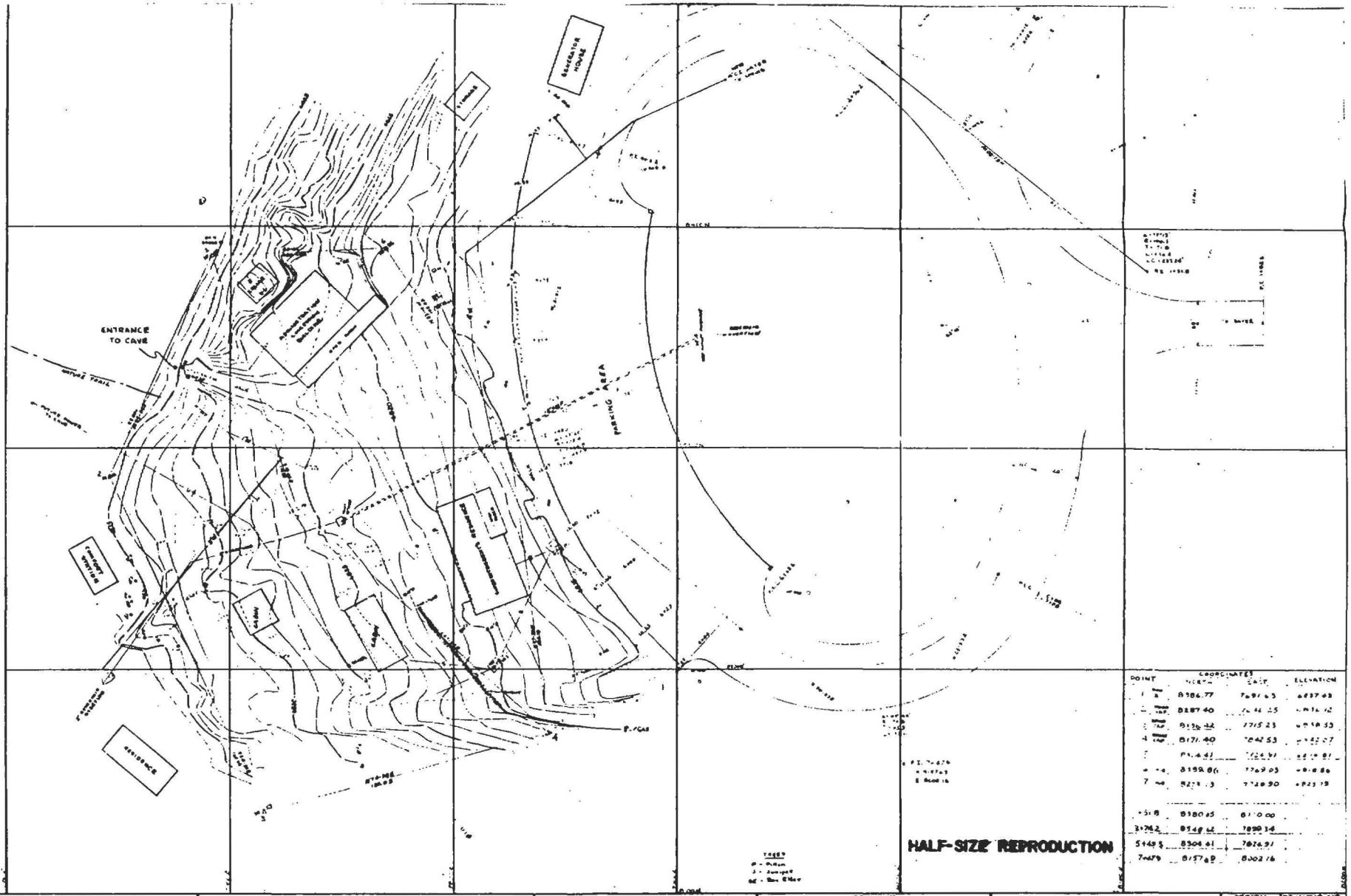
In December 1964 a new master plan was approved for Lehman Caves National Monument. As expressed in the document the purpose of the monument was to provide

> for preservation and for public use and enjoyment of an intricately decorated marble cavern, and of a natural Great Basin pinyon-juniper forest environment. It enables visitors to view the beauty and to understand and appreciate the natural forces which create and dominate limestone caverns; to understand the difficulties of early pioneers and contemporary speleologists in exploring and explaining caverns; and to understand and appreciate the ecological community which exists in this Great Basin area.[69]

---

68. Memorandum for Lands, C.J. Olsen, ARF, May 23, 1941, Vertical Files, Great Basin National Park.

69. U.S. Department of the Interior, National Park Service, *Master Plan of Lehman Caves National Monument, December 1964*, Vol. 1, Chap. 2, Area Objectives, Purpose. A map showing the topography and development of the headquarters area in September 1961 may be seen on the following page.



POINT	COORDINATES NORTH	COORDINATES EAST	ELEVATION
1	8386.77	7691.63	6837.43
2	8287.40	7644.25	6836.12
3	8136.42	7715.23	6838.53
4	8171.40	7842.53	6842.07
5	8314.41	7724.91	6819.81
6	8399.86	7769.03	6818.86
7	8273.13	7720.90	6823.79
8	8380.65	8170.00	
3+74.2	8548.62	7899.34	
5+49.5	8304.61	7826.91	
7+47.9	8157.69	8002.16	

SHEET 1 OF 1 — SEE INDEX SHEET FOR NO. SHEETS COMPLETED

SCALE 1" = 20'

GRAPHIC SCALE

CONTOUR INTERVAL 5'

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF ENGINEERING
WODC

TOPOGRAPHIC SHEET 1 OF 1
HEADQUARTERS AREA
LEHMAN CAVES NATIONAL MONUMENT, NEVADA

REGION IV

DRAWING NO. NM-LC 9125

The national monument was experiencing a steady annual increase of visitors by 1964. Yearly visitation had increased from about 10,000 in 1950 to some 30,000 by 1964. During the period from May to September when approximately 85 percent of the annual visitation occurred, 30 percent of the registered visitors were from California, 30 percent from Utah, 14 per cent from Nevada, and 26 percent from the remaining states and foreign countries. Winter visitors were primarily from Utah (40%), Nevada (30%), and California (10%). The average duration of visit per person at the monument was estimated to be 3-1/4 hours, including a 1-1/2-hour cave tour.[70]

In 1964 the staff of the national monument consisted of a superintendent and four permanent and nine temporary employees. These included a chief park naturalist who supervised five temporary park guides and one temporary park ranger, one permanent administrative assistant, one permanent Foreman II, Maintenance, and one permanent maintenance man who supervised three temporary laborers.

Various operations were conducted on the lands of the national monument. The combination snack bar and souvenir shop in the visitor center was operated between Easter and Veterans Day under a three-year revocable concession permit. The Lehman Caves Natural History Association had been incorporated in 1963 under the laws of the State of Nevada and operated primarily as a publication sales organization. Special use permits were granted to the Nevada State Department of Highways to maintain .43 miles of State Highway 74 inside the monument; to the U.S. Forest Service to maintain .25 miles of Baker Creek Road which crossed the southeast corner of the monument; and to the Bell Telephone Company of Nevada to maintain a right-of-way necessary to furnish telephone service to the visitor center and residence area.

Staff housing at the monument in 1964 could "achieve the present target of 12 employee units if only males are hired, if unmarried seasonals are not rehired, and if one cabin is converted to a bunkhouse." The housing units included: (1) four new three-bedroom residences; (2) one old two-bedroom residence; (3) one large one-bedroom cabin (3-person capacity); (4) one small one-room cabin (2-person capacity); and (5) one small trailer (2-person capacity).[71]

During the spring of 1967 the National Park Service and the U.S. Forest Service signed a cooperative agreement that provided for combined visitor services and maintenance facilities for both bureaus at Lehman Caves National Monument. The development program included enlargement of the monument's Visitor Center to include Forest Service offices and exhibits and a ranger residence and maintenance facilities for Forest Service personnel who would administer the Visitor Information Services for the Wheeler Peak Scenic Area.[72]

As a result of this agreement an addition to the south end of the Visitor Center was constructed in 1969. Included in the addition were an office and exhibit area for the Forest Service and a combination cafe and curio shop. In 1970 a Forest Service residence was completed in the staff housing area at the monument, thus allowing the bureau to move the former residence at the Baker Guard Station to Ely.[73]

---

70. *Ibid.*, Vol. 1, Chap. 1, Basic Information, The Visitor.

71. *Ibid.*, Chap. 3, Management Programs Narrative, Staff Activities.

72. *Ely Daily Times*, May 16, 1967.

73. Interpretive Prospectus for Lehman Caves National Monument, Nevada, Prepared by John L. Schippleck, August 1973, p. 23, Vertical Files, Great Basin National Park, and Personal Interview with Virginia Eldridge, Baker, Nevada September 15, 1988.

During the late 1960s and early 1970s visitation to Lehman Caves continued to increase at an average annual rate of about eight percent. In 1972, for instance, the peak period of use was from Easter through September. The heaviest visitation months were June, July, and August, the combined total for those months being approximately sixty percent of the year's total.[74]

During the mid-1970s the National Park Service began developing a "Statement for Management" for each unit of the National Park System. The statements, which were revised and updated periodically, were designed to provide an up-to-date inventory of the park's condition and an analysis of its problems. The statements provided a format to park administrators for evaluating conditions and identifying major issues and information voids.

The first "Statement for Management" for Lehman Caves National Monument was approved by Howard H. Chapman, Western Regional Director, on January 10, 1977. As indicated in the document the purpose of the monument was

> to preserve the caves for their unusual scientific interest and importance. Use shall be promoted and regulated to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

The statement provided for land classification management zones (a map showing these zones may be seen on the following page) within the national monument. Three management zones (natural, historic, and development) with three subzones were "classified" to "depict present management practices."

The majority of the land in the monument was zoned as natural. Within this zone were three subzones. In the natural environment subzone natural resources and processes were to "remain largely unaltered by human activity except for the approved development essential for management use, and appreciation of the monument." These developments included primary and secondary roads, the native trail behind the visitor center, water tank and chlorinator, and sewer system. The subzone was to be managed "to maintain existing natural conditions as a setting for the prime resource of the monument.

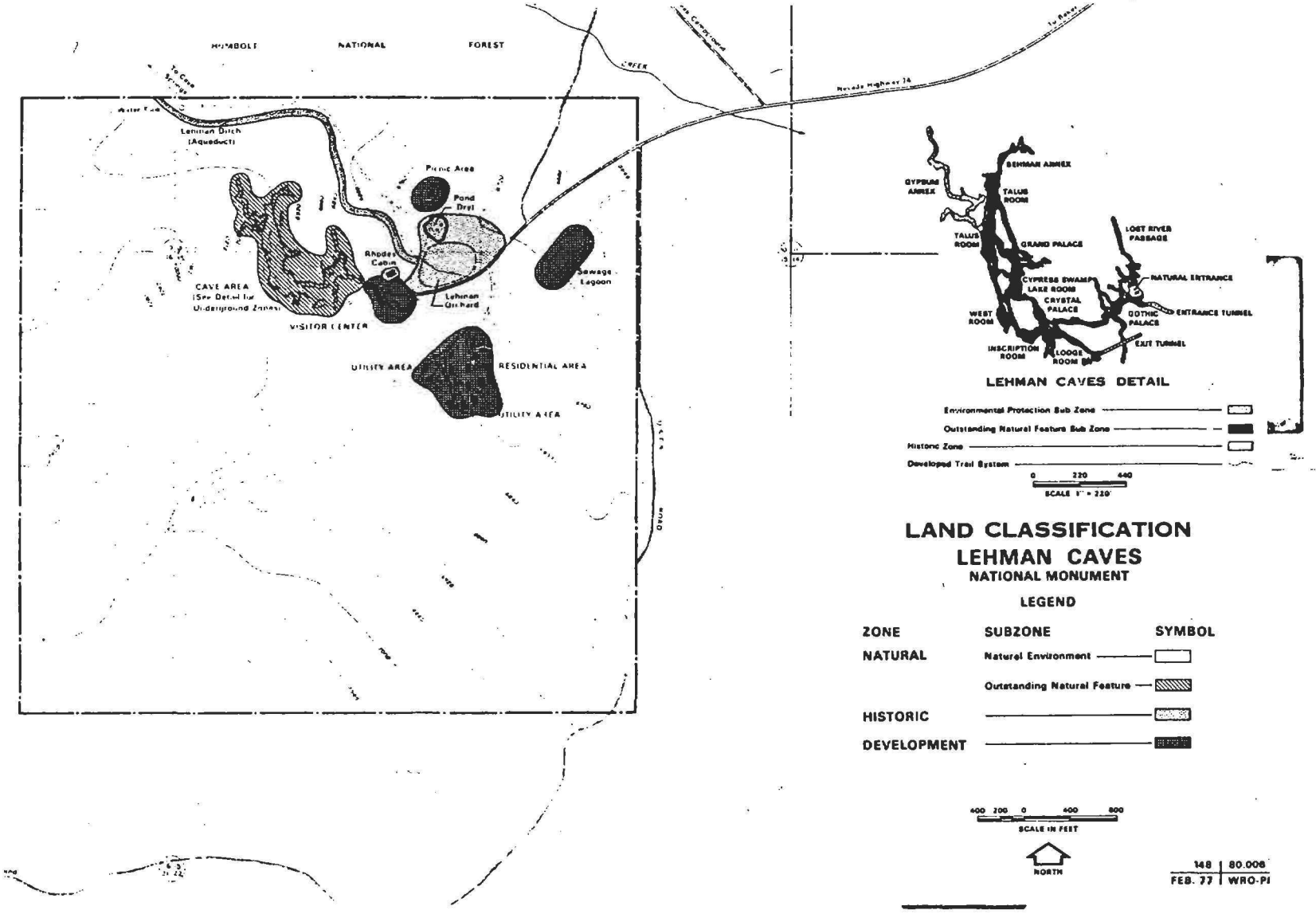
The environmental protection subzone included the land surface above the cave and the Gypsum Annex portion of the cave. It was to be managed "to perpetuate the cave with minimal human intrusion in accordance with the park's Natural Resources Management Plan." The only developments in this subzone were the nature trail and the cement enclosure over the Natural Cave Entrance. The Gypsum Annex was to remain closed except for research purposes because of its fragile environment and difficult access. Later, the Lost River Passage portion of the cave would be added to this subzone due to significant archeological discoveries.

The outstanding natural feature subzone encompassed "the underground living cave system" which was the "park's principal attraction." The subzone was managed "to provide for visitor enjoyment without impairing its quality." The unique geologic features of the cave, notably the "great variety of speleothems, were said to "to possess unusual intrinsic value."

The historic zone included the Rhodes Cabin and the Lehman Orchard and Lehman Aqueduct which had been listed on the National Register of Historic Places. Placement of

---

74. Interpretive Prospectus for Lehman Caves National Monument, Nevada, Prepared by John L. Scheppleck, August 1973, pp. 4-6, Vertical Files, Great Basin National Park.


HUMBOLDT NATIONAL FOREST
To Cave Springs
Lehman Ditch (Aqueduct)
Picnic Area
Pond Dry
Rhodes Cabin
Lehman Orchard
Sewage Lagoon
CAVE AREA
VISITOR CENTER
UTILITY AREA
RESIDENTIAL AREA
UTILITY AREA
Nevada Highway 16
To Baker
BEHMAN ANNEX
GYPSUM ANNEX
TALUS ROOM
TALUS ROOM
GRAND PALACE
LOST RIVER PASSAGE
CYPRESS SWAMP
LAKE ROOM
NATURAL ENTRANCE
CRYSTAL PALACE
WEST ROOM
GOTHIC PALACE
ENTRANCE TUNNEL
INSCRIPTION ROOM
LODGE ROOM
EXIT TUNNEL
LEHMAN CAVES DETAIL
Environmental Protection Sub Zone
Outstanding Natural Feature Sub Zone
Historic Zone
Developed Trail System
0 220 440
SCALE 1" = 220'
LAND CLASSIFICATION
LEHMAN CAVES
NATIONAL MONUMENT
LEGEND
ZONE
SUBZONE
SYMBOL
NATURAL
Natural Environment
Outstanding Natural Feature
HISTORIC
DEVELOPMENT
400 200 0 400 800
SCALE IN FEET
NORTH
148 | 80,006
FEB. 77 | WRO-PI

these sites on the National Register entitled them to protection under Executive Order 11593 (36 CFR, Part 800) and the National Historic Preservation Act of 1966 as amended. The archeological site below the Natural Cave Entrance was also included in the historic zone. Physical development in this zone was "the minimum needed to preserve, protect, and interpret those historical values."

The development zone included the residential area, visitor center, picnic area, and sewage lagoon. This intensive use zone was managed to provide and maintain development that served the needs of park management and visitors.

By 1977 several memorandums of understanding and/or special use permits served both the National Park Service and U.S. Forest Service in the administration and management of the national monument and the surrounding Humboldt National Forest. One provided for the joint occupancy and use of the administrative site by both bureaus, including joint use of the Visitor Center and location of a Forest Service-owned three bedroom home, house trailer, and AV trailer within the monument. Another provided for joint construction, development, and operation of wastewater disposal facilities. A third provided for fiscal controls concerning utilities, laborer services, and specialized maintenance between the two bureaus. A fourth provided for a public access road across the southeast corner of the monument to the Baker Creek area of Humboldt National Forest. In addition, a memorandum of understanding provided for cooperation in the resolution of fire problems of mutual concern to the two bureaus.

For its part the Forest Service had issued a special use permit to the National Park Service granting water rights to a spring. The permit also authorized construction of collection boxes, a fence, and pipelines for provision of a domestic water supply to the monument.

The Park Service and Nevada State Department of Fish and Game had a memorandum of understanding for joint and cooperative endeavors contributing toward wildlife protection within the monument. A fence surrounded the monument to prevent intrusion by hunters and cattle grazing.

The Park Service had granted two special use permits to utilities. One granted to the Bell Telephone Company of Nevada provided for a telephone right-of-way of approximately 900 feet of buried cable. A second granted to Mount Wheeler Power, Inc., provided for a right-of-way 25 feet wide and 554 feet long to furnish commercial electricity in underground lines to a master meter on the monument grounds.

A five-year concession permit authorized a park concessioner to provide food service, refreshments, and souvenirs to the public. The permit assigned to the concessioner the kitchen, dining room, gift shop, sales and storage areas, entryway, and west porch eating terrace of the Visitor Center. The concession was open from Easter weekend until September 30 each year.

Park staffing permitted five cave tours daily from Labor Day to Memorial Day and sixteen daily tours during the summer months. Tours were 1-1/2 hours long, and the carrying capacity per tour was forty people.

The "Statement For Management" enumerated the management objectives of the park. The objectives (a copy of which may be seen in Appendix BB) related to the following issues:

Natural resources on the surface
Natural resources in the caves
Cultural resources
Recreational use

Interpretation
Visitor and employee safety
Acquisition of information
Cooperation
Development[75]

At the time the "Statement for Management" was approved in January 1977 the staff at Lehman Caves National Monument consisted of six permanent and eleven seasonal, temporary, or subject-to-furlough employees. The organization was as follows:

Superintendent
Administrative Technician

Chief of I & RM
Park Technician
Seasonal Park Technicians (six)
Seasonal Park Aid
Maintenance Mechanic Foreman
Maintenance Worker
Laborer (Subject-to-Furlough, 11 months)
Temporary Laborers (three)

Since the Park Service exercised proprietary jurisdiction over the monument, the superintendent, chief of interpretation and resource management, and park technician were deputized by the Sheriff of White Pine County.

Interpretive activities were a major component of the monument's program during the 1970s. According to Superintendent David F. Moore, the principal emphasis of the interpretive program in 1977 was

> devoted to guiding visitors through the cave and explaining the various formations along with the archeology, geology and history. During the summer, evening programs are presented on Friday and Saturday nights each week, alternating weeks with the U.S. Forest Service. During the winter, programs were given at the local schools at least monthly. The new A.V. room has aided the interpretive program in showing the movie "The Lehman Caves Story." The first showing of the movie occurred June 10, 1976.[76]

The park interpretive program was enhanced by various activities during the late 1970s and early 1980s. In 1979 a small amphitheater was constructed in the picnic area to serve as the site for park interpretive programs.[77] In 1982 candlelight cave tours were offered to the public for the first time.[78]

---

75. "Statement for Management, Lehman Caves National Monument," January 10, 1977, pp. 1-20, Files, Technical Information Center, Denver Service Center, National Park Service.

76. Annual Report, Superintendent, Lehman Caves National Monument, January 8, 1977, Vertical Files, Great Basin National Park.

77. Annual Report, Superintendent, Lehman Caves National Monument, January 9, 1980, p. 10, Vertical Files, Great Basin National Park.

78. Annual Report, Superintendent, Lehman Caves National Monument, 1982, p. 6, Vertical Files, Great Basin National Park.

The Park Service continued to upgrade its facilities at Lehman Caves National Monument during the early 1980s. In 1981, for instance, two significant construction projects were completed. A sewage lagoon/dump station was completed in July, more than doubling the capacity of the sewage treatment system and providing a trailer dump station for visitors and campers. In September a new water tank system was completed, including a chlorination contact chamber and a 50,000-gallon storage tank and associated valve boxes.[79]

Interpretive guide training became an increasing emphasis during the 1980s. In 1982, for instance, Superintendent Albert J. Hendricks observed:

> The main emphasis in the interpretive program continues to be the guiding of visitors through the cave. Training of guides is of primary concern and they are presented with the basic facts about the resource and interpretive guidelines. Each tour is individually developed to incorporate the basics and the guide's particular theme. The guides are expected to submit their themes and objectives for review near the beginning of the season to enable them to develop their techniques to the fullest during the year.[80]

The ongoing program of cave exploration continued during the late 1970s and early 1980s. On July 1, 1979, a new cave on the monument grounds was discovered by Ed Wood, Chief of Interpretation and Resource Management. Named "Wood's Hole Cave," it was found to extend a minimum of 825 feet. Although few calcite speleothems adorned the cave, "curious wax-work-like structures" could be seen throughout its crawlways.[81]

On November 10, 1981, the north portion of the Talus Room of Lehman Caves was closed to public entry to prevent personal injury from what appeared to be a dangerous unstable portion of the cave wall. After a two-cubic-foot rock fell from the ceiling of the south end of the room in April 1983 the entire area was closed to public entry. That year an agreement was reached between the National Park Service and the U.S. Geological Survey for completion of a stability study of the Talus Room.[82]

The Lehman Caves "Statement for Management" was revised and updated in January 1984. The new statement included a visitor use analysis section, which noted that total visitation had "remained fairly constant during the past five years" (33,000), but "had decreased from the previous five years average" (39,000). The remote location of the monument and road conditions affected by weather were viewed as the primary problems limiting visitor use of the monument.

The revised statement also contained updated management objectives for the national monument. While most of these were simply updated to reflect current monument practices

---

79. Annual Report, Superintendent, Lehman Caves National Monument, CY 1981, Superintendent's Annual Report – 1981 – File, Vertical Files, Great Basin National Park, and Humboldt National Forest, Ely Ranger District, R 4, Environmental Analysis Report, Gravel Source and Waste Disposal Site for National Park Service Lagoon and Dump Station, Lehman Caves National Monument, May 15, 1978, Basic Data, Great Basin National Park General Management Planning Team Files, Denver Service Center.

80. Annual Report, Superintendent, Lehman Caves National Monument, CY 1982, Superintendent's Annual Report – 1982 – File, Vertical Files, Great Basin National Park.

81. Annual Report, Superintendent, Lehman Caves National Monument, January 9, 1980, p. 9, Vertical Files, Great Basin National Park.

82. Annual Reports, Superintendents, Lehman Caves National Monument, 1981, p. 9, and 1983, p. 11, Vertical Files, Great Basin National Park.

and policies, three new objectives were stated, reflecting new NPS and federal legislative concerns and standards. These were management efficiency, visibility and air quality, and environmental concerns.[83]

After several years of research and preparation the staff at Lehman Caves National Monument, under the direction of Superintendent Hendricks, submitted the first draft of an "Orchard Management Plan" in July 1986. The plan was written to provide management guidance for actions relating to the historic Lehman Orchard. The plan addressed the history of the orchard, general orchard operation, and specific management actions relating to the orchard. The management actions section included twenty "action statements" that would provide management and interpretive directives for preservation and restoration of the orchard. These statements pertained to: (1) historic tree preservation and fruit production; (2) pruning; (3) fertilization; (4) correcting drainage problem; (5) watering system; (6) soil moisture monitoring; (7) disease and insect pest control; (8) reestablishing Lehman Pond; (9) orchard fence; (10) reestablishing historic ground cover; (11) non-historic fruit tree removal; (12) grafting and planting of historic tree stock; (13) irrigating with Lehman Aqueduct; (14) reestablishing historic irrigating branch lines in orchard; (15) metal detector search; (16) compilation of orchard history; (17) interpretive trail to orchard; (18) orchard exhibit; (19) nature trail brochure; and (20) selling orchard produce.[84]

---

83. "Statement for Management, Lehman Caves National Monument," Revised January 1984, pp. 17-18, 27-31.

84. Lehman Caves National Monument, Orchard Management Plan, July 1986, pp. 1-28, H30 – Lehman Orchard Restoration, Central Files, Great Basin National Park.

CHAPTER TWELVE
HISTORY OF THE MOVEMENT TO ESTABLISH GREAT BASIN NATIONAL PARK

INTRODUCTION

There has been much speculation concerning efforts in the 1920s to enlarge the boundaries and change the designation of Lehman Caves from that of a national monument to a national park. When that effort failed the State of Nevada attempted to develop the area as a "state recreation ground" first in cooperation with the U.S. Forest Service and later outside Forest Service jurisdiction. Those were the first endeavors to establish a national park and develop a state recreation area in the area of present-day Great Basin National Park.

EFFORTS TO ENLARGE THE LEHMAN CAVES-WHEELER PEAK AREA INTO A NATIONAL PARK AND STATE RECREATIONAL GROUND DURING THE 1920s

During the early 1920s Nevada Governor James E. Scrugham initiated development of a system of "state recreation grounds" in cooperation with the U.S. Forest Service. The system had the tacit approval of Secretary of Agriculture Henry C. Wallace and Chief Forester W.B. Greeley. One of the first such designations was the Lehman Creek area. In April 1923 the entire Snake Division of Nevada National Forest was designated as a state recreation ground and Lehman State Game Refuge.[1]

During the spring of 1924 Cada C. Boak, who had been the prime mover in the campaign to have Lehman Caves established as a national monument in 1922, began efforts to have the boundaries of the national monument enlarged and its designation changed to that of a national park. It should be noted that Boak had originally recommended that the national monument be a three-square-mile area, but that the Forest Service, with Boak's acquiescence, had reduced the boundaries of the proposed monument to one square mile in the face of opposition from grazing interests before submitting its recommendation to the Department of Agriculture. Thus, in 1924 Boak initiated efforts to have the boundaries of the national monument enlarged to the approximate limits of his original recommendation and have the newly-enlarged unit designated a national park. The proposed park would include Wheeler Peak, the nearby alpine lakes, the drainage basins of Lehman and Baker creeks, and the Baker Creek Caves which recently had been found to contain pictographs. He contended that the varied scenic and cultural resources of the area warranted national recognition and protection and should be incorporated into the national park system.[2]

A modest promotion campaign was launched by Boak and other interested persons in 1924. Senator Key Pittman supported the campaign and planned to introduce a bill in Congress if the idea were sanctioned by Governor Scrugham. The *Ely Daily Times* reported on April 26, 1924:

> Establishment of a national park in Nevada is proposed by Senator Key Pittman who is considering the introduction of a bill that would make such a park of the

---

1. *Ely Record*, April 13, 1923, and Scrugham to Greeley, August 14, 1924, L – Boundaries, Nevada, 1924, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539). Also see Greeley to District Forester, August 29, 1924, Vertical Files, Great Basin National Park.

2. *Ely Record*, May 2, 1924.

> Lehman Caves, now a national monument. Leo McClatchy has written to western newspapers for which he is Washington correspondent.
>
> Pittman says he will write first to Governor Scrugham to get the state executive's views on the matter. If Scrugham thinks the idea is a good one, congressional authorization will be sought.
>
> The Lehman Caves are about sixty minutes southeast of Ely, almost on the route of the Lincoln Highway. Additional development in the immediate vicinity of this natural wonder, including highway construction, it is thought, would result from creation of a park. National parks, it seems, always are a great attraction to the tourist and hence, the park service devotes more attention to their development.[3]

While Scrugham was reviewing the proposed legislation, Boak submitted recommendations to Pittman that called for establishment of an enlarged national park in the Lehman Cave-Wheeler Peak area. On May 2, 1924, the *Ely Record* printed a lengthy article containing portions of Boak's recommendations. The article stated:

> Instead of creating a national park of Lehman caves monument, the suggestion is made to Senator Pittman that he improve the plan and add 100 per cent of the attractiveness of the project by including Lehman caves, Baker and Lehman creeks and the summit of Mount Wheeler. This would be included in a rectangular area, comprising a beautiful camping ground, a cluster of little lakes at the head of Lehman Creek, the summit of Mount Wheeler and, most important of all from a scenic point of view, the castellated gorge of Mount Wheeler and Wheeler glacier.
>
> This is the suggestion clearly set forth by C.C. Boak, father of the Lehman monument, in a letter addressed to Senator Pittman in which he does on to relate some of the glories of the panorama.
>
> All in all, it is the most beautiful thing of the kind I know of anywhere in the west. An auto road can be built up Baker creek to within possibly a couple of thousand feet of the south rim, from where a trail could easily be built to the rim. The climb on up to the summit would be hazardous but most interesting one and not unduly long.
>
> With the caves for a base and Baker and Lehman creeks paralleling one another up the mountain, and the summit of Mount Wheeler, it should make a national playground that would be hard to excel anywhere.[4]

Senator Pittman accepted Boak's recommendations, and Scrugham approved the revised proposal. In June 1924 Pittman introduced a bill calling for an enlarged national park, but strong opposition from grazing interests caused the bill to die. On June 13 the *Ely Record* described the success of the Nevada Livestock Association in preventing the bill from reaching the Senate floor:

> The bill recently introduced by Senator Pittman to have the Lehman Caves national monument created into a national park, will not be pressed at this

---

3. *Ely Daily Times*, April 26, 1924. An identical article was printed in the *Ely Record* on April 24, 1924.

4. *Ely Record*, May 2, 1924.

session of congress, and probably not at all, because of the fact that grazing permits are not issued for national parks, which in this instance would work a hardship on local stockmen in that section, requiring them to seek new grazing grounds for their herds, which cannot be found in eastern Nevada. The attention of Senator Pittman was called to this fact by Vernon Metcalf, secretary of the Nevada Livestock Association, who suggested that the bill be withheld for further consideration, to which Senator Pittman consented.[5]

With the defeat of this bill Governor Scrugham commenced efforts to have the "state recreation ground" improved and developed in cooperation with the U.S. Forest Service. Scrugham's renewed interest in the area stemmed from his visits to Lehman Caves in July and August 1924. In early July Governor Scrugham visited the Lehman Caves-Wheeler Peak area to become more acquainted with its scenic highlights. The *Ely Record* published an account of this visit on July 4, 1924. While at the monument the governor

> secured horses and worked his way back into the far reaches of Mount Wheeler to the twin lakes, which with the mountain scenery and the timber, he considers equal, if not superior, to the Yellowstone park. Mr. Renear, who is almost a professional photographer, was brought along to secure a collection of photographs not only of the interior of the caves but also of the lakes and mountain scenery of the monument.

The article went on to state:

> Governor Scrugham is quite enthusiastic over the wonderful possibilities of the future of Lehman Caves monument and while there devised a number of plans for its improvement, which include the blasting out of a new entrance to the caves and also the building of trails from the caves to a connection with the lakes in the interior of the mountain range. These improvements, he believes, can be done for an expense not to exceed $5000, which in his judgment could be arranged by the state and the federal government, and in co-operation with the Forest Reserve, would be sufficient to make the mountain available for sight-seeing and camping excursions. It is also a part of the general plan to erect temporary buildings, which would include baths, where tourists could rest and refresh themselves for a few days after their long journey from points in Utah or Nevada on their visit to the caves. Mr. Renear was successful in securing a number of excellent photographs which will be developed and enlarged and later used for advertising purposes throughout Nevada and other states, which would soon attract a large amount of travel to this wonderland of nature. With proper advertising, and with accommodations for tourists at the caves, it is the opinion of the governor that by another year the monument and the caves would become a big drawing card with tourists, and a permanent asset to the eastern section of the state.
>
> The facts are that the beauty of the caves and the grandeur of the scenery around Mount Wheeler, which is the highest peak in the state, and containing the only glacier in Nevada, are not appreciated even by local people, hundreds of whom have not even visited the caves. If these scenic features were located in California, they would long ago have been advertised world-wide, because the

5. *Ely Record*, June 13, 1924.

people of California make a specialty of capitalizing all such attractions, and they have found that such publicity brings splendid results in attracting tourists.[6]

Scrugham again visited the Lehman Caves area on August 8 and 9. Forest Ranger Quate volunteered to conduct the governor and two associates, Drs. Frandsen and Schappelle to several caves along Baker Creek. Quate described the governor's visit, reaction, and subsequent Forest Service activity:

> There is a small cavern in the Baker Creek Narrows in which ancient picture writings are found which is well known to many people in that section. However, near this wellknown cave there is another smaller cave which is nearly filled with earth and boulders. In this latter cave I discovered after some labor at excavating a number of picture writings, which were quite different from those found in the larger cave. Upon being shown these, Dr. Schappelle declared that they were of great scientific interest because of the proof of antiquity which was present. Immediately after this Dr. Schappelle made a thorough examination of the place and found other writings which I had not previously observed. Governor Scrugham was greatly interested in the find and authorized the expenditure of $200.00 to be used for excavations and also to place a barrier across the entrance to the cave, this expenditure to be made under my supervision. The next day I set two men at work. They are going ahead as directed by Dr. Schappelle and will finish about August 23.

On August 9, 1924, Quate directed Schappelle and Frandsen to several other caves along Baker Creek. According to Quate he took the men

> to a cave which has been known for a long time as an old Indian burial ground and guided them through the place after providing equipment for the entrance which is by a direct descent of 55 feet. In this cave the skeletons of five human bodies were found. Many more are probably hidden in the mound of debris below the opening.
>
> I described the cave in Baker Creek, in which flows a small stream of water, to the professor but advised them that I had told only a very few of the place because of the great danger in entering it on account of great masses of broken and loose rocks which are always wet and slippery. The entrance to this cave is by way of a cliff about 190 feet in height.
>
> Dr. Frandsen, however, insisted on seeing the underground stream, which is indeed a very curious sight, and I accordingly conducted him through this cave.[7]

Within several days of his visit to Lehman Caves Governor Scrugham wrote to Chief Forester W.B. Greeley. On August 14 he informed Greeley of his plans for the Lehman Caves-Baker Caves area and solicited the Chief Forester's cooperation in the venture. He stated:

---

6. *Ely Record*, July 4, 1924.

7. Quate to Beam August 11, 1924, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539). Quate believed himself "to be the discoverer of the picture writings which were buried beneath the wash of soil and boulders," and he was positive that no one "had ever found the underground stream before I explored it sometime late in 1923."

About one mile from the present National Monument are located a second set of caves containing writings and relics left by a prehistoric race which I would like to develop as a tourist attraction.

We have allotted the sum of $200 to the local Ranger, Mr. Graham Quate, with the request that he use the money to secure labor for further excavating the caves. I have also taken the liberty of requesting the Ranger to erect a barrier across the entrance until such time as we can properly protect the ground from vandalism. I have further arranged to authorize the expenditure of $2500 at the Lehman Caves for a rest room, bath house and swimming pool, which are greatly needed improvements for the convenience of tourists.

Above the cave area are a number of exquisitely beautiful mountain lakes which we have arranged to fully stock with trout for the attraction of fishermen.

Nevada possesses but few recreation grounds, and I am hopeful that we can secure your cooperation in the creation of a system of State Parks in this and other localities.[8]

Governor Scrugham visited the Lehman Caves-Baker Caves area again on August 20-21, 1924, this time in company with State Geologist J.C. Jones, Civil Engineer C. McQuiddy, and Alan LeBaron, an archeologist for the Hearst-owned *San Francisco Examiner.* According to Forest Supervisor Charles A. Beam, the two men hired by Scrugham to excavate the Baker Creek Caves had found several "relics of real value." These items included a "Mask" made "of some sort of skin," a stone "Mortar" some 18 x 14 x 4 inches which had been hollowed out to a depth of about 1-1/2 inches, a "mallet," several pieces of broken pottery, and a number of teeth that appeared to be human. Great quantities of "badly decomposed bones of animals" and large amounts of ashes and charcoal were also found. Scrugham took all of these artifacts to the Nevada State Museum in Carson City.

At the mouth of the cave in which the relics had been found there were "ancient writings" which LeBaron believed to be 2,500 years old. The archeologist photographed the writings, and "his story together with cuts of the ancient writings" was to appear in all of the Sunday editions of the Hearst newspapers. Some of the writings were "badly weathered," but most were in "an excellent state of preservation."

Beam reported to his superiors that Scrugham was "deeply inthused [sic] over the prospects at these caves" and believed that the area would "become one of the most noted places in the State." Scrugham advised Beam "that he had appropriated $1,200.00 with which to erect a bath house at the Lehman Caves and that this structure would be located upon lands deeded to the State" by Rhodes which were "immediately adjacent to the caves." By September 15 the governor expected "to bring some Hotel men to the caves." The governor anticipated that a modern hotel would be constructed. The Nevada Fish and Game Department would stock "the streams and lakes with an abundance of fish" and the game preserve "with many kinds of game animals and birds." The governor was particularly interested in stocking Lehman and Snake creeks and Teresa, Stella, and Brown lakes.

Scrugham wanted the Forest Service to construct "a good Auto road from the Lehman Caves to the two small lakes" which were situated "at the foot of Mount Wheeler and at a distance of approximately three miles from the caves." This effort, according to Scrugham, "would be about equal" to the state efforts in the area. The governor expected to have the state "construct a good road to the caves which will connect with the Ely-Baker road at a

---

8. Scrugham to Greeley, August 14, 1924, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

point approximately six miles north of the caves." This road would permit tourists to drive to the caves from Ely over the state road "and thence on to Baker over the Forest Service road or vice-versa."[9]

On September 18, 1924, Forest Supervisor Beam recommended to the district forester that Lehman Caves National Monument be enlarged "since there are several things of general interest situated therein." The "object of greatest interest within this proposed addition" was "some caves situated at the Narrows of Baker Creek Canyon and which were evidently used by some prehistoric race." The caves, according to Beam, would "have but very little, if any, attraction to the average tourist since all they can see there is the ancient writings which to the average person means but very little, since they are not understandable."

The proposed addition would also include Wheeler Peak and the nearby alpine lakes. Beam noted:

> The next place of interest in this addition to the National Monument is Mt. Wheeler which is reputed to be the highest mountain in the State of Nevada and upon which a small glacier is located in a deep ravine on the north side. A very limited number of tourists might wish to climb to the top of this peak, from which point a very great radius of country may be seen. The next point of interest is Tereasa Lake situated immediately at the foot of Mt. Wheeler at the extreme head of Lehman Creek Canyon which now covers an area of approximately one and one-half acres and which, at its greatest height, immediately after the spring runoff of snow would cover approximately three acres. There are two other small lakes about threefourths of a mile southeast of Tereasa Lake, neither of which could hardly be termed as lakes since they are very much smaller than Lake Tereasa. There are no fish in either of these lakes or more correctly termed ponds and it is my opinion that fish could not be kept in these lakes since they have a rock bottom and there is absolutely no vegetation in them from which fish could secure their food. Tereasa Lake is very shallow and it is the opinion of all those acquainted with the lake that it freezes to the bottom each winter. There is a good automobile road from Baker, Nevada to Lehman Caves and also to the Caves in Baker Creek Canyon but in order to reach Lake Tereasa it would be necessary to construct approximately ten miles of auto road and this road would cost approximately $5000 per mile.

Beam observed that Lehman Caves National Monument was gaining in popularity "very rapidly." Some 200 persons had visited the cave in 1920, but more than 1,500 had already toured the cavern that season. More advertising and better roads between Ely and Milford would increase visitation.

Although Scrugham believed that a road could be constructed to Teresa Lake at nominal cost, Beam had come to different conclusions. He had

> measured the distance from the lake to Lehmans Cave and found the most direct distance to be 6.7 miles. The road would necessarily have to follow Lehman Creek Canyon and this has a grade ranging from 10 to perhaps 20 per cent which will necessarily increase the length of the road to a maximum of 10 miles or perhaps a little more. With the exception of the three very small lakes and Mt. Wheeler above discussed, there is nothing in Lehman Creek Canyon which would interest tourists and it is my opinion that but very few tourists

---

9. Charles A. Beam, Forest Supervisor to District Forester, Ogden, Utah, August 22 and September 18, 1924, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

would care to make the trip to the lakes since the road would necessarily have to be very crooked through numerous switchbacks in order to make a grade sufficiently level for automobiles to travel over and a road of this kind is not at all attractive to the average motorist, since they are very dangerous to travel over due to the many switchbacks which would necessarily have to be maintained on this road.

Beam felt that Scrugham was "somewhat over enthusiastic in regards to the Lehman Creek Road and Lehman Caves and vicinity" and was certain that this area could "never compare favorably with Yellowstone or Yosemite Parks" as Scrugham had asserted in a letter to the White Pine County commissioners. He appreciated fully, however, the "necessity for recreational grounds in Nevada" and sincerely believed "that every consistent effort should be made to improve the Lehmans Cave National Monument." Grazing should be restricted on the proposed addition "to accommodate the travelling public by maintaining suitable camp grounds along the course of Lehman Creek." After the travel season each year sheep and cattle could be permitted "to graze over this area which would be beneficial to the range through tramping the matured seed into the ground and reducing fire hazard."

Beam commented that the existing national monument was "under the jurisdiction of the Forest Service and if the addition is made to this Monument I feel that the supervision of the entire area should still remain with the Forest Service." He commented further on the supervision, roads and trails, and visitor services in the Lehman Cave vicinity:

> The Forest Service has heretofore constructed a good automobile road from Baker, Nevada to Lehmans Cave and also a road up Baker Creek Canyon for a distance of three miles above the newly discovered caves which makes that portion of the Lehmans Cave district reasonably accessible for automobiles. There is now an existing old road from Lehmans Cave up Lehman Creek for a distance of approximately two miles over which automobiles can pass, though it is not in any sense a desirable automobile road. This road covers practically all of the desirable camp grounds on Lehman Creek and I do not believe it advisable at this time to undertake the construction of an automobile road from the Caves to Tereasa Lake. There is at present a fairly good horse trail from the Caves to Tereasa Lake and the care-taker, Mr. Rhodes, has a string of saddle horses which he uses in taking a saddle horse trip to the lakes with tourists whenever they desire to go. Mr. Rhodes states that very few people express a desire to go to the lakes and that so far this season he has had only three small parties who have taken the trip on horseback. . . . Under the present arrangements we have a very good control over this National Monument and every person with whom I have discussed the subject expresses themselves as being entirely satisfied with our present plan of management and I believe for the best interests of the area and the public generally, there should be no change from our present method of supervision.

Beam stated that a barrier had not been constructed across the mouth of the Baker Creek Caves since there was "nothing of interest which could be carried away by visitors at these caves." Since the caves extended "along the foot of a ledge some two or three hundred feet," an effective barrier "would have to be some sort of a stockade structure."[10]

When the district forester objected to such a large addition to Lehman Caves National Monument, Beam defended his recommendations. In a letter to the district forester on

---

10. Charles A. Beam, Forest Supervisor to District forester, Ogden, Utah, September 18, 1924, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

December 6, 1924, Beam indicated his proposal had been a maneuver to counter Scrugham's recent efforts to have the area designated a state park outside Forest Service jurisdiction. He stated:

> My only object in recommending so large an addition to the present Lehmans Cave National Monument was to have it in conformity as nearly as possible with the desires of Governor Schrugham. It was my understanding that the Governor was intending to make an application for the setting aside of this particular area as a State Park, which would, of course, place the park under the control of the State, which, in my judgement, would materially interfere with the proper administration of the National Forest. I felt, therefore, that if we could increase the area of the National Monument to conform to the Governor's proposed plan of a State Park, there would be no room for criticism of the Forest Service by the State if the application for a State Park was disapproved, since the National Monument would cover all of the grounds desired by the State and would permit tourists to enjoy this area as fully as though it was under State or National Park Government.
>
> From a strictly business point of view I feel that if sections 15 and 22 of Township 13 North, Range 69 East were added to the present National Monument this would serve all purposes other than those outlined above and it is my honest opinion that if State control of any portion of this area can be avoided without a greater extension to the National Monument that we should not ask for addition more than the two above described sections.

Beam reiterated his negative feelings concerning the value of the Baker Creek Caves. He noted:

> The Baker Creek Alcoves, while containing a number of Indian picture writings, are not in any way attractive and it is my opinion that they will have no value to the travelling public since such alcoves or depressions in ledges can be found in many places throughout the mountains. I had observed these Indian writings at numerous times and I had failed to see anything attractive about them. In discussing this question with many other persons they have all informed me that so far as they were concerned the alcoves and Indian writings were of no particular interest to them. I, therefore, feel that the great amount of publicity these alcoves have received is uncalled for and that the representations of them have been greatly overdrawn.

In conclusion Beam felt "that by all means the control of this area should be retained by the Government and that it should not be released under any circumstances to the State." If "application for a State Park" could "consistently be disapproved" additions to the existing national monument "should not include more than sections 15 and 22."[11]

Ten days later on December 16, 1924, District Forester R.H. Rutledge informed the Chief Forester of the need to enlarge Lehman Caves National Monument. In "view of the interest shown in the Baker Creek Alcoves by Governor Scrugham and the amount of publicity given same," the enlargement was considered "advisable." Thus, he proposed that the national monument be enlarged to provide "the necessary protection to the alleged prehistoric hieroglyphics" and "cover all the under-ground channels of the cave." He commented that "we have no great amount of enthusiasm over the alcoves but are of the opinion that they should be protected pending further examination at least."

---

11. *Ibid.*, December 6, 1924, L – Boundaries, Nevada, 1911, RG 95, National Archives and Records Administration, San Bruno (Accession No. 74A-240/Location No. 9539).

Rutledge went on to explain that the "surrounding area" was "of mediocre importance for recreational purposes" and it was "doubtful if a special act to include the small lakes and Mt. Wheeler will be warranted." However, this issue would "be worked out with the Governor in the near future."[12]

After reviewing this recommendation the Chief Forester's office decided to defer enlargement of Lehman Caves National Monument until a detailed scientific investigation had been conducted by the Smithsonian Institution or the Carnegie Institution. On January 10, 1925, Assistant Forester L.F. Kneipp explained the rationale behind this decision:

> From the Supervisor's report it is not clear that the Monument contains any objects of special historic or scientific interest other than the cave. The Indian writings may be of interest and of such importance that they should be protected by a monument withdrawal but this is not yet known and probably will not be until they are examined by such authority as Governor Scrugham has in mind – that is, a representative of the Smithsonian Institution or Carnegie Hall.
>
> In view of the whole present situation and understanding respecting the Lehman Cave Monument, it is our feeling here that it would be well to postpone any movement looking to the enlargement of the Monument until more definite information can be secured as to the value of the Indian writings and any other features which may be of importance. It is suggested that we await the examination which the Governor says he hopes to have made. When that is completed, no doubt we can secure such further information from the persons who conduct the examination to enable us to make a more comprehensive report to the Smithsonian Institution and decide whether the Monument should be enlarged.[13]

The efforts of Governor Scrugham to establish a state park in the Lehman Caves-Baker Caves area and of the Forest Service to enlarge the boundaries of Lehman Caves National Monument ended in 1925. No further documentation concerning the issue could be found. However, when the state legislature established a Nevada State Park System in March 1935 Lehman Caves National Monument was designated as one of six units in the embryonic system. Although it was acknowledged that Lehman Caves "strictly speaking, is a national monument," it was included in the state park system. The six units, including Cathedral Gorge, Kershaw Canyon-Ryan State Park, Beaver Dam Park, Boulder Dam-Valley of Fire State Park, and Fort Churchill, were publicized as composing "the nucleus of what should, in the near future, become a comprehensive unification of natural phenomena found in Nevada, first conditioned and then made accessible by highways for citizens of the Sagebrush State and visitors to view and fully enjoy."[14]

National Park Service records also indicate that bureau officials continued to discuss the enlargement of Lehman Caves National Monument as late as the mid-1930s. On August 21, 1936, for instance, H. Donald Curry, Park Ranger in Charge, wrote to Western Regional Geologist J. Volney Lewis:

---

12. R.H. Rutledge, District Forester to The Forester, December 16, 1924, Historical Files, USFS, Elko.

13. L.F. Kneipp, Assistant Forester to District Forester, Ogden, Utah, January 10, 1925, Historical Files, USFS, Elko.

14. "Nevada Has Diverse Park System," *Nevada Highways and Parks*, I (March 1936), 1-4.

> To my mind the country is ideal for recreational purposes, and would make a fine addition to the monument. At present there is a good deal of poaching of deer, and the campers are not too tidy.
>
> With the coming of good roads to the vicinity of the monument, such a recreational area would be greatly used. It is in the Nevada National Forest at present, of course. Glaciation would be the most interesting geological phenomena in the back country.
>
> I think that the headwaters of Baker and Lehman Creeks, over to the divide at the western edge of the range, (and perhaps some of the country to the south – clear to Snake Creek) should be included within the boundaries of the monument. This would include, approximately, the eastern half of T. 13 N., R. 68 E; and the western half of T. 13 N., Range 69 E.; perhaps forty square miles, all told.[15]

No documentation could be found concerning any Park Service pursuit of the idea for enlarging the national monument.

MOVEMENT RESULTING IN ESTABLISHMENT OF GREAT BASIN NATIONAL PARK: 1955-1986

In 1955 several events occurred that would ultimately lead toward the formation of a movement to create a Great Basin National Park in White Pine County in eastern Nevada. This movement would achieve success some thirty-one years later on October 27, 1986, when President Ronald Reagan signed Public Law 99-565 establishing Great Basin National Park as the nation's forty-ninth national park. This chapter will trace the events and political developments that played a role in that thirty-one-year campaign.

In June 1955 the establishment of a national park, incorporating Lehman Caves and the Wheeler Peak vicinity, was suggested at a meeting of the White Pine Chamber of Commerce and Mines in Ely. The chamber apparently saw the proposed park as an issue that would attract publicity and tourism to White Pine County and thus add a new source of income to an economy that was largely dependent upon the fluctuations of the mining industry.[16]

The movement to establish Great Basin National Park was directly inspired by what has come to be referred to as the rediscovery of the "Wheeler Glacieret" or "Wheeler ice field" in August-September 1955. Weldon F. Heald, a conservationist and free-lance writer from Tucson, Arizona, and Albert Marshall, an associate from Three Rivers, California, spent five days hiking in the Snake Range. In an article published in the *Sierra Club Bulletin* in December 1956 Heald wrote of his excursion the previous year:.

---

15. Curry to Lewis, August 21, 1936, Lehman Caves File, Box 1, Central Files, 1936-40, Region IV, Record Group 79, Records of the National Park Service, National Archives and Records Administration, San Francisco Branch, San Bruno, California.

16. Waite, "Proposed Great Basin National Park," Part II, pp. 735-36. Two sources that should be examined along with this section are: Robert Starr Waite, "The Proposed Great Basin National Park: A Geographical Interpretation of the Southern Snake Range, Nevada" (unpublished Ph.D. dissertation, University of California, Los Angeles, 1974), Part II, pp. 732-76, and Steve Oulman, "Copper, Cows, and Crown Jewels: A Case Study Analyzing the Context of Debate Surrounding Establishment of Great Basin National Park In Terms of Regional History, National Park Politics, and Community Attitudes Towards Economic Development: (a terminal project presented to the Department of Planning, Public Policy and Management, University of Oregon, August, 1987).

> Last year, after a little detective work, Albert Marshall and I discovered what we believe to be a hitherto unknown and unsuspected glacier in Nevada's Snake Range. While stalking the ice, which lies hidden deep in the great north cirque of Wheeler Peak, we spent five days knapsacking in as delightful an alpine sky country as we had ever seen. In fact, we were so impressed that I later made the suggestion that the finest part of the Snake Range be included in a national park or monument.

Heald elaborated further on the rediscovery of the glacieret or ice field:

> My curiosity was first aroused some years ago by an article in an old U.S. Geological Survey annual report. It described a body of ice on Wheeler Peak seen in 1883 by Mr. William Eimbeck of the Coast and Geodetic Survey. But he gave few details and no intimation that it might be an active glacier, and he obviously didn't enter the cirque. My interest was further stimulated by an examination of air photographs, and by a distant view of Wheeler Peak's north face while crossing Sacramento Pass in 1947. Time didn't permit investigation then, but I felt certain that some of the ice remained. I resolved to have a closer look at the earliest opportunity.
>
> Eight years passed before I was able to satisfy my curiosity. But finally last September, with Albert Marshall, companion on many previous mountain jaunts, I ascended Lehman Creek canyon and camped in the glacial basin at its head. We spent several days exploring the high country, climbed Wheeler Peak and descended the north face far enough to see ice, and eventually made our way into the great north cirque. This proved to be as arduous an expedition as Albert and I had ever undertaken together. But when we passed the portal-like cliffs and saw into the cirque, we both shouted at once. For there before us, cradled in the gigantic rock basin, was not just ice, but an active glacier. All the signs of moving ice were readily apparent – névé, bergschrunds, crevasses, and fresh moraines. True, this was no giant river of ice. It was triangular in shape, and its greatest dimension probably didn't exceed 2,000 feet. But the wonder was that it should be there at all in the midst of the Nevada desert.[17]

Heald immediately began a promotional campaign to support his recommendation for establishment of a national park in the Snake Range.[18] On September 23 he wrote to the Forest Service concerning his "rediscovery" of the glacieret and interest in preserving the area. Forest Supervisor L.A. Dremolski responded on October 13:

> As you may have observed the area around the glacier is little changed since being established as part of the Nevada National Forest in 1906. It would, no doubt, remain in this state, however, studies are now being made as to the desirability of having it set aside as a wild or scenic area. We appreciate your interest in attempting to keep a few areas in their natural state.
>
> Incidently, three of us made a trip to the glacier on October 4 and found it to be exactly as per your report. Also, even for Forest Service men it proved to

---

17. Weldon F. Heald, "The Proposed Great Basin Range National Park," *Sierra Club Bulletin*, XLI (December 1956), 46, 51-52.

18. Heald commenced efforts to have the glacieret officially designated the Matthes Glacier in honor of Francois Emile Matthes (1874-1948), one of America's distinguished glacial geologists. The Board on Geographic Names did not adopt the name, however, and thus the glacieret or ice field remains unnamed. *Ibid.*, 52, and Waite, "Proposed Great Basin National Park," Part II, pp. 737-38.

be an "arduous scramble." Your discovery should add considerable to the outside interest in Eastern Nevada.[19]

At the same time Heald contacted the White Pine Chamber of Commerce and Mines concerning his "rediscovery" of the glacieret and interest in having the area designated a national park. At a conference it was determined that a permanent ice mass in the Great Basin, as well as the scenic quality of Lehman Caves, the adjacent lake and forest country, and the panoramic views afforded by Wheeler Peak, warranted national recognition. In response Heald proceeded to write numerous articles for newspapers and conservation periodicals describing the attractions of the area, commencing with a two-part article in the *Ely Daily Times* on September 28 and October 1, 1955, respectively. In the second part of this article, he argued for protection of an extensive part of the Snake Range under the administration of the Park Service:

> Wheeler Peak is the culminating summit of the Snake Range, which stretches for 80 miles north and south in central Nevada, some 10-15 miles west of the Utah line. Although surrounded by deserts and paralleled east and west by wide treeless valleys, the range rises 6,000-8,000 feet into an enchanting mountain oasis. Here are deep canyons, cascading trout streams, snow-streaked ridges, forests of pine, fir, aspen and spruce, jewel-like alpine lakes, and green meadows spread with wildflowers. The range is included in a detached section of Nevada National Forest and at Wheeler's east base is Lehman Caves National Monument.
>
> However, if a satisfactory transfer can be made between the Forest Service and Park Service, I believe Lehman National Monument should be enlarged to include the Lehman Creek and Baker Creek drainages, and perhaps upper Snake Creek – an area of from 35 to 50 square miles. Most of this highly scenic country is too rough for roads, resort developments, or extensive grazing, and should be preserved in its wilderness condition for all time as a delightful haven for camp and trail life. As population grows and fast-paced modern civilization encroaches upon our last remnants of original wilderness, we will increasingly need such unspoiled, outdoor recreational areas as this high, inspiring country round about Wheeler Peak.[20]

The recommendations by Heald were received favorably by conservation organizations, such as the Sierra Club, National Parks Association, Wilderness Society, and Desert Protective Council. As a result, an active promotional campaign for a Great Basin Range National Park was launched, spearheaded by the White Pine Chamber of Commerce and Mines.[21] In January 1956 the organization established a special park development committee to publicize the project. On January 23, 1956, the *Ely Daily Times*, whose editor Darwin Lambert was a former member of the Nevada state legislature and employee of the NPS and would become a leading proponent of the proposed park, published an article recommending establishment of a 28,000-acre national park.[22] Included within the proposed boundaries were Lehman Caves; Wheeler Peak; Stella, Teresa, and Brown lakes in upper

---

19. Dremolski to Heald, October 13, 1955, Notebook "HNF History – Land Uses," Historical Files, USFS, Elko.

20. *Ely Daily Times*, September 28, October 1, 1955.

21. Heald, "Proposed Great Basin Range National Park," 46.

22. The papers of Lambert and other proponents of the park may be found in the Nevada Outdoor Recreation Association Collection at the Nevada Historical Society, Reno.

Lehman Creek Canyon; Baker Lake in upper Baker Creek Canyon; and Johnson Lake in upper Snake Creek Canyon.[23]

The special committee's publicity effort soon attracted the attention of Nevada's congressional delegation – Senators Alan Bible[24] and George W. Malone and Representative Clifford Young. At the request of these congressmen the National Park Service agreed to conduct a field investigation to evaluate the proposed park lands for possible inclusion in the National Park System. Thus, on August 13-15, 1956, representatives from the NPS Region Three office in Santa Fe led a field reconnaissance survey of the area. The official party included six U.S. Forest Service employees and seven NPS personnel. In addition, representatives of the Sierra Club, Nevada Fish and Game Commission, White Pine Chamber of Commerce and Mines, Nevada Game Protective Association, and other interested persons accompanied the group for a portion of the time.

After the three-day investigation was completed John E. Kell, Chief of Lands, Region Three, coordinated the official report. The document, submitted on December 12, 1956, was preliminary in nature and made no specific recommendations. The general conclusions of the NPS representatives, however, were summarized by Kell:

> The Wheeler Peak Area is the best example of a "Sky-Island" in the Great Basin Area. The glacier alone is not sufficient reason to establish the area as part of the National Park System. Persons supporting the establishment of the area to "Protect" it will probably be satisfied with nothing less than a National Park. The area is important enough to warrant further study, but the Service should not compromise and accept anything less than a workable unit.
>
> If establishment commitments are made, it should be with the full understanding that title to all mining claims, patented and unpatented, will be acquired inside the boundaries. Grazing rights should be acquired or otherwise extinguished. All private land inside the proposed boundaries should be acquired and a fee simple title donated to the United States before any legislation establishing the area is enacted.

If accepted as a unit in the National Park System, the proposed park, according to the NPS investigators, should include the Wheeler Peak area and the Lehman, Baker and Snake Creek drainages. The south boundary should also include both sides of Big Wash.[25]

Despite the noncommittal nature of the report Heald and other park proponents continued their efforts to have a national park established in the Snake Range. Writing in the July-September 1957 issue of *National Parks Magazine* Heald stated:

> With its ease of access and the expanded visitors' facilities planned by the Park Service, Lehman Caves would form the nucleus and headquarters for the new

---

23. *Ely Daily Times*, January 23, 1956.

24. The Alan Bible Papers, which contain considerable data on his legislative efforts to establish the park, are located in the Special Collections Department, University Library, University of Nevada, Reno.

25. "Field Investigation Report, Wheeler Peak Area, Nevada," August 1956, pp. 1-18, Files, Technical Information Center, Denver Service Center. The report contained separate sections with recommendations on biology by Lowell Sumner, Biologist, Sequoia and Kings Canyon National Park, geology by Bennett T. Gale, and general comments by James H. Gadsby, NPS Naturalist-Geologist in the Washington Office. For the views of the Nevada Fish and Game Commission on the proposed park as a result of its participation in the field investigation see Nevada Fish and Game Commission, Reno, Nevada, Survey Report on Proposed Wheeler Peak-Lehman Caves National Park Area [1956], in 86th Congress, Box 21, Folder 347, Cannon Papers, University of Nevada, Las Vegas.

park or enlarged monument. The mountainous area is too rough and restricted for extensive road or resort development and would best be preserved in its natural state as a wilderness for camping, hiking and horseback riding. Precedents for this kind of park, in which large parts are left untouched, with the exception of trails and shelters, are Grand Teton, Kings Canyon, Olympic and others.

One of the basic policies of the Park Service is that each unit in the system should exemplify a definite kind of American scenery and, where possible, every park should be the finest of its kind. We proponents of "Great Basin National Park" believe that Nevada's Snake Range fulfills these requirements and would make a unique and significant addition to our national parks.

Heald went on to quote C. Edward Graves, western representative of the National Parks Association:

> The fact that this is the only known glacier in the Great Basin lying between the Rockies and California's Sierra Nevada . . . and that in five horizontal miles the ascent of Wheeler Peak goes through five life zones, from the Upper Sonoran to the Arctic-Alpine, makes the area unique from a scientific standpoint. The spectacular scenery of the great peak, with its tremendous cirque, comparable to the famous east face of Longs Peak in Colorado, and the unusually beautiful sub-alpine meadows and lakes and forests, combine to give the area the necessary qualifications as a unit of the national park system.[26]

As the national park proposal received increasing attention, park proponents decided to form a separate organization to promote the park cause. Thus, on August 25, 1957, more than thirty persons met at Lehman Caves National Monument to establish the Great Basin Range National Park Association[27] with Darwin Lambert as president and Weldon Heald as vice president. The purpose of the organization, which had its headquarters in the White Pine Chamber of Commerce and Mines building in Ely, was explained in its constitution:

> The organization is to work toward establishing a Great Basin Range National park in eastern Nevada, including Wheeler Peak, Matthes Glacier, Lehman Caves and an appropriate and adequate portion of the surrounding area, to be protected and preserved for the enjoyment, education and inspiration of the people. It is to encourage appreciation of the area as the superb example of the more than 100 Great Basin ranges and the unique basin-and-range topography, to stimulate research and to gather and disseminate facts about the earth history, geological structure, flora and fauna of this Great Basin range, and to watch over and influence development and use of the area so as to keep its great natural values unimpaired for future generations.

During the next five years the organization, which would drop the word "range" from its name in 1959, promoted the park project by publishing newsletters, conducting jeep and hiking excursions to the area's attractions, printing articles in major newspapers and state and national periodicals, producing a 28-1/2-minute color film entitled "Great Basin Range – Nevada", a brochure, and forty colored slides, for circulation in cooperation with the

---

26. Weldon F. Heald, "National Park Proposed for Nevada," *National Parks Magazine*, XXXI (July-September 1957), 99-102.

27. The papers and materials of the organization are in the Great Basin National Park Files at the Nevada Historical Society, Reno.

Nevada Department of Economic Development, and contacting individuals, organizations, and conservation groups throughout the nation.[28]

The National Parks Association supported the work of the Great Basin Range National Park Association. Earlier in 1957 the executive committee of the National Parks Association voted to support the 28,000-acre park proposal, but with the proviso that the area be reserved in national monument status and appended to Lehman Caves.[29] In the January-March 1958 issue of *National Parks Magazine*, Joseph F. Carithers, assistant western representative of the National Parks Association, wrote:

> In company with Darwin Lambert, president of the newly-formed Great Basin Range National Park Association, I hiked up to Baker Lake in the heart of the proposed park. . . . The trip carried us through scenic country which took on an alpine look as we drew near the lake. We saw remnants of the great snow pack that covers the region in winter and a tiny "iceberg" floating on the calm water. Baker Lake and the beautifully proportioned crique above it are unbelievably majestic.
>
> Rich in scientific features, the Snake Range has a variety of plant life that is astonishing in a region regarded by most people as a desert. Five life zones are represented; the glaciation story to be read is outstanding; the animal life also covers a broad variety. These facts strongly favor giving the area national park protection.[30]

The publicity campaign of the Great Basin Range National Park Association resulted in calls for a second, more thorough NPS investigation of the Snake Range as to the advisability of establishing a national park in the Wheeler Peak-Lehman Caves area. On April 1, 1958, Senators Bible and Malone introduced S. 3587 providing that the Secretary of the Interior "investigate and report to the Congress" concerning the issue. That same day Representative Walter S. Baring[31] introduced H.R. 11799 as a companion bill to S. 3587.[32]

The reactions of the Department of Agriculture and the Department of the Interior to these bills are interesting to note. In a letter to Clair Engle, Chairman of the House Committee on Interior and Insular Affairs, on July 3, 1958, Acting Secretary of Agriculture True D. Morse commented on H.R. 11799:

> We recommend that the bill be not enacted because (*a*) in a 1957 survey this Department concluded that the multiple resources of the area could be managed better as a national forest than a national park, and (*b*) present authority to

---

28. Waite, "Proposed Great Basin National park," Part II, pp. 744-48. Examples of Heald's articles appearing in national periodicals are "Wheeler Peak and Its Glacier," *Nevada Highways and Parks*, XVIII (1958), 3-6, and "Nevada's Wheeler Peak and Great Basin Range – A Possible National Park," *Nature Magazine*, LI (June-July 1958), 314-17, 330.

29. Heald, "National Park Proposed for Nevada," 99.

30. Joseph F. Carithers, "Western Park Notes," *National Parks Magazine*, XXXII (January-March 1958), 17-18. Carithers elaborated on his hike to Baker Lake in a follow-up article. See Joseph F. Carithers, "Exploring the Baker Creek Trail," *National Parks Magazine*. XXXII (April-June 1958), 71-73.

31. The Walter S. Baring Papers, which contain considerable data on his legislative efforts concerning Great Basin National Park are located at the Nevada Historical Society, Reno.

32. *Congressional Record* – House, April 1, 1958, 85th Cong., 2d Sess., Vol. 104, Pt. 5, p. 6028, and *Congressional Record* – Senate, April 1, 1858, 85th Cong., 2d Sess., Vol. 104, Pt. 5, p. 5878.

make the proposed study and report is adequate. But if the bill is favorably considered by the committee, we recommend amendment as hereinafter described.

Although we do not favor enactment of the bill, we believe that if the Congress desires a report by the Secretary of the Interior on the national-park potentials of the area, Congress should also have the information on the resources of the area and their uses and management available to this Department as a result of its nearly 50 years of administration. Therefore, if the bill is favorably considered by the committee, we recommend that it be amended to authorize and direct a report to the Congress by this Department as well as by the Secretary of the Interior, particularly with respect to suitability of the area for continued multiple use management and the impact that establishment of the area of a national park would have upon the remaining national forest and users of national-forest resources.

One week later, on July 10, Assistant Secretary of the Interior Roger Ernst wrote to Engle concerning his department's response to H.R. 11799. He observed:

It is not believed that enactment of the bill is necessary.

The Department has adequate authority to conduct studies of any area thought to possess scenic or other values that might qualify it for recognition as a unit in the national park system. Under this authority preliminary reconnaissance of the Wheeler Peak-Lehman Caves area has been made. Plans are now being formulated for conducting more comprehensive studies of the entire Great Basin area to determine whether Wheeler Peak and its environs (or any other section of the basin) possess significance sufficient to warrant designation as a national park or monument.

After consideration of H.R. 11799 and S. 3587, which already had passed the Senate containing the proposed amendment by the Department of Agriculture, the House Committee on Interior and Insular Affairs recommended House approval of S. 3587 on August 8, 1958. The committee supported its recommendation by noting:

For the Congress to have adequate information on which to base a decision of whether the area covered by the bill should or should not be erected into a national park and, if so, what conditions should be attached to its creation, it is important that it have a full, complete, and prompt review of the situation by the departments chiefly concerned and their recommendations thereon.[33]

In response to this legislation the National Park Service conducted an extensive two-part investigation of the Lehman Caves-Wheeler Peak area in 1958.[34] As the result of a reorganization Lehman Caves National Monument and hence the field reconnaissance had been transferred to the Region Four office in San Francisco. A joint survey involving Park

---

33. U.S. Congress, House, Committee on Interior and Insular Affairs, *Providing That the Secretary of the Interior Shall Investigate and Report to the Congress As To the Advisability of Establishing a National Park in Wheeler Peak-Lehman Caves Area of the Snake Range in Eastern Nevada*, H. Rept. 2526, 85th Cong., 2d Sess., 1958, pp. 1-4.

34. In September 1958 the National Park Service requested permission from the Forest Service to make a joint study of both the Lehman Caves-Wheeler Peak area and the Ruby Mountains. The Forest Service agreed to an investigation of the Ruby Mountains. See Recreation Resource Planning, Status Sheet, Great Basin, Nevada [1959], Legislative Files, Division of Legislation, Washington Office, National Park Service.

Service and Forest Service officials was led by James E. Cole, Chief, Branch of National System Planning, on October 13-17. A second field reconnaissance, concentrating on ecological concerns, was conducted by Daniel Burroughs, Chief, Branch of State Cooperation, NPS, and Dr. Adolph Murie, a biologist from the University of California who had done extensive work at Crater Lake National Park, from October 29 to November 13. Various other individuals from local, state, and federal agencies and organizations participated in portions of the investigation.

In February 1959 the Park Service published its report and recommendations based on the field studies conducted the previous fall. The report recommended establishment of Great Basin National Park, a 147,000-acre area comprising approximately the northern three-fourths of the Snake Division of Humboldt National Forest as well as some 20,000 acres lying outside the forest on public domain and about 3,000 acres of privately-owned lands. The southern quarter of the national forest division had been left out because it included a tungsten mine and was the primary winter habitat of the Lehman deer herd. It was thought that hunting in that area could keep the deer population within carrying capacity, thus avoiding damage to the projected park's vegetation. According to the report, the Great Basin was

> one of the major geographic divisions of North America and is not characteristically represented by any unit of the National Park System. . . . The Snake Range, culminating in Wheeler Peak (13,063 feet in altitude), and portions of the adjacent lowland desert, are typical of the geologic structures generally signified by the term Great Basin. . . . All natural phenomena associated with life in the Great Basin are exemplified within the study area. Due to its greater height and central location within the Great Basin, the study area interprets exceptionally well the ecological conception described by the term sky island.

Thus, the proposed park envisioned "the preservation of a segment of the Great Basin." The "outstanding resources of the area" were "ecological," but these were "augmented by both geologic and scenic values having significant features" which could "be easily interpreted." The report concluded:

> The proposed area contains an assemblage of resources which in total warrant addition as a unit to the National Park System. Wheeler Peak is the outstanding mountain in the central and the typical part of the Great Basin. Ecology is the principal theme and can be illustrated and interpreted better here than elsewhere. Lehman Caves, which is included in the area, is an outstanding geological exhibit. The glacial cirques, glacieret, (if such it turns out to be), and geology of the Snake Range are significant additional interesting features. Major use would consist, in addition to cave visitation, of nature study and appreciation. The varied scenic, scientific and historic resources would be interpreted by means of visitor centers, self-guiding nature and historic trails, and supplemented trailside exhibits or markers. Other uses would include hiking, horseback riding, picnicking, overnight camping, and general sightseeing. All but about three percent of the land included in the proposed area is owned by the Federal Government. The State of Nevada appears to be quite solidly behind the proposal.[35]

---

35. U.S. Department of the Interior, National Park Service, Region Four, "Field Investigation Report, Lehman Caves-Wheeler Peak, October 13 to 17, 1958, October 29 to November 13, 1958, Portion of Southern Section of Snake Range, White Pine county, Nevada," February, 1959, pp. 1-4, Files, Technical Information Center, Denver Service Center.

While the Park Service was compiling this report a group of interested persons met at the University of California, Berkeley, to discuss the justification for establishing the proposed park. In attendance were representatives from the National Park Service and University of Nevada and members of various conservation organizations, state agencies, and civic groups. At the meeting it was agreed that the southern Snake Range warranted national park status and offered good possibilities for interpreting the principal themes of the Great Basin. It was felt that a larger portion of the range should be included in the park as well as a representative sample of the adjacent desert landscape in Snake Valley. This would increase the size of the proposed park to some 210,000 acres, including the portion of the southern Snake Range between U.S. Highway 6-50 and Highland Ridge and some 20,000 acres of desert lowland northwest of Baker.[36]

The Forest Service mounted a counterattack against the proposals for a Great Basin National Park in February 1959. In a strongly-worded article in *American Forests* C.J. Olsen, who as supervisor of Nevada National Forest during the early 1930s had played a leading role in the effort to have Lehman Caves National Monument transferred back to Forest Service jurisdiction, opposed all efforts to establish a national park in the Wheeler Peak vicinity and defended the merits of multiple use management of the area by the Forest Service. Among other things he noted:

> Under multiple use management, with the application of research methods and through the cooperative efforts of the land managing agencies, the Nevada Fish and Game Department, the sportsmen, those interested in recreation development, the water users, the stockmen, and other interested groups, we can have a permanent, productive and thriving economy, without the restrictions necessarily imposed by a national park or national monument status.
>
> I should add also that the proposed national park boundaries would leave a narrow marginal area of forest and range lands in the Snake Range still under Forest Service management, but awkward and expensive to administer effectively.
>
> My whole argument up to this point amounts to this: *The special resources which the national park system is designed most expressly to protect, make available, and preserve, are already being made available, protected and conserved.*
>
> On the one hand, therefore, little if anything that the public needs and wants from the Mt. Wheeler area would be gained by making it into a national park; on the other hand, much – very much – would be lost.

Olsen concluded the article by stating:

> For half a century, the multiple-use doctrine has been tested in all of its aspects, and has proved itself good. In consequence, I have no reluctance in saying that multiple use, *except in extraordinary situations*, is the only policy that can serve well enough the important purpose for which it was intended; "Maximum good . . . to the greatest number of people . . . for the longest possible period of time." The Mt. Wheeler area does not constitute such an extraordinary situation.

---

36. "Results of Field Investigations for the Proposed Great Basin National Park, Nevada," *Sierra Club Reprint Series*, No. 1, San Francisco, November 26, 1959, p. 1.

> Even so, I am aware that national park status for the Mt. Wheeler area will capture much public fancy. Over the most impressionable and the least informed it will cast something of a spell. To all such as these it will loom as a *bona fide* case of love at first sight, and hence a love quickly to be espoused. To still others, though it looms as a flattering proposal, it will be something to be thoughtfully weighed. And finally, to the judicious and the well-informed, it will loom as an illicit affair, easy to get into, but burdensome to endure, and once espoused impossible to shake.[37]

About the time that this article was being published the Forest Service announced the establishment of the Wheeler Peak Scenic Area, a 28,000-acre enclave that included the central portion of the proposed park and was nearly identical to the original park proposal espoused by Darwin Lambert in 1956. Boundaries of the scenic area, which was designated on February 13, 1959, extended along the crest of the Snake Range from Bald Mountain to Granite Peak and eastward to include the upper and middle portions of the Lehman, Baker, Snake, Big Wash, and Lexington Creek drainage basins. As advertised by the Forest Service the area included Wheeler Peak and its glacieret, the world's largest mahogany tree, several alpine lakes, two natural rock arches, superb views of Great Basin valleys and mountain ranges, and bristlecone pine stands. Forest Service plans for the new reserve included a program for extended recreational development made possible by "Operation Outdoors," a government plan to expand national forest resources throughout the United States to meet the demands of increasing numbers of tourists.

Forest Service officials were careful to note that plans for the scenic area would not interfere with multiple-use forestry, livestock grazing, hunting, fishing, or mining. Resorts, cabin camps, summer homes, and commercial enterprises would be allowed on lands adjacent to the scenic area.

The initial phase in the development of the scenic area was to consist of construction of a two-way road up Lehman Creek Canyon to Stella Lake, camping and picnic facilities near the lake, and a trail to the Wheeler Peak glacieret. Plans also called for trail improvement work and new campgrounds on lower Baker Creek and installation of rustic signs to guide tourists to the features in the area.[38]

Proponents of a national park in the Wheeler Peak area viewed the Forest Service action as a direct move to help undermine the park project. In defense of its move the Forest Service stated that plans for the new reserve had originated several years earlier when the Snake Range was under consideration for a proposed "Glacier Scenic Area" and that development plans were announced in 1959 because the park proposal appeared uncertain.[39]

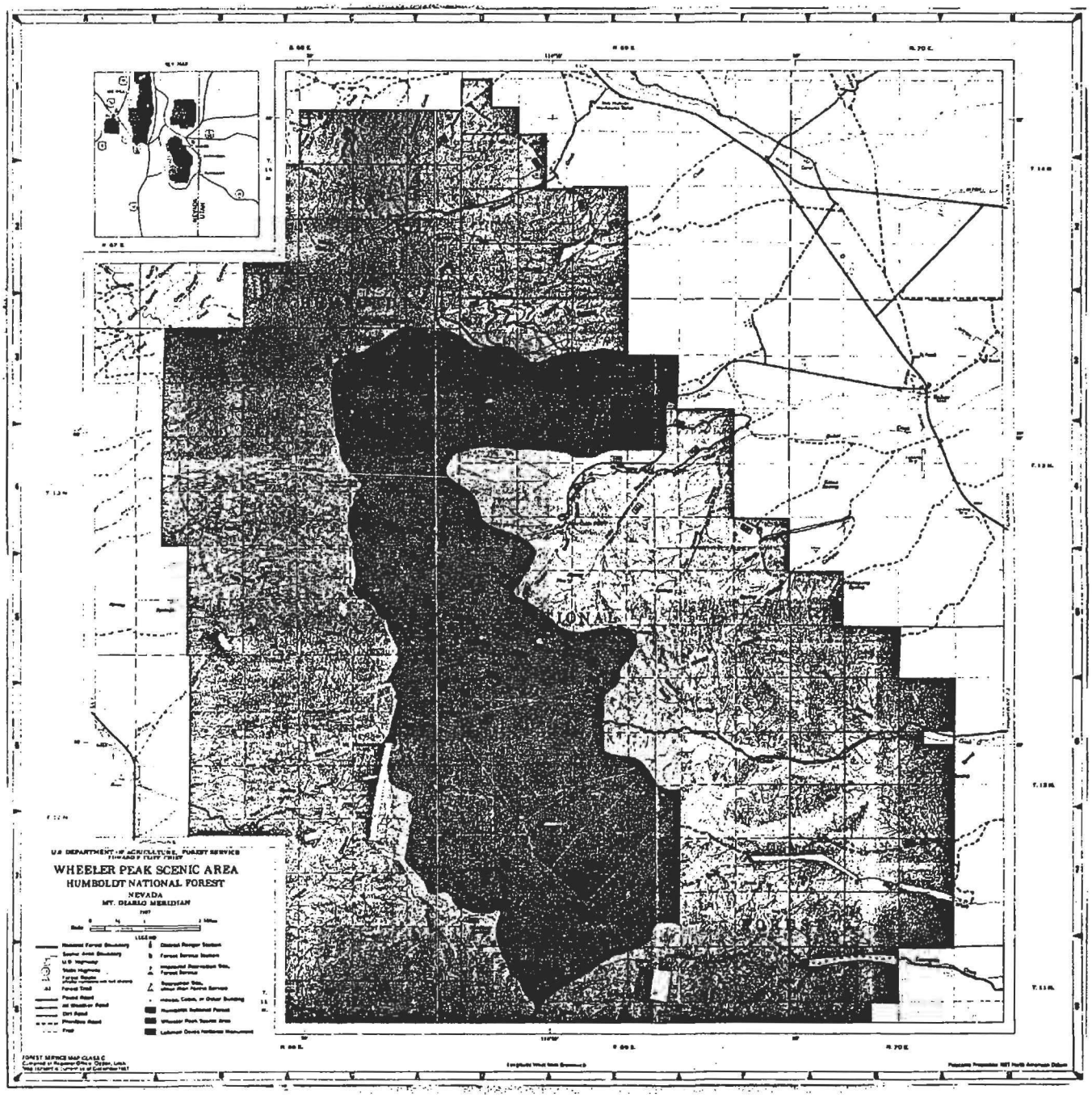
Park proponents protested several components of the Forest Service plans for the scenic area. In February the Great Basin National Park Association and the Nevada State Board of Economic Development, while welcoming recognition of the scenic values of the area, urged that the road to Stella Lake, camping and picnic facilities near the lake, and construction of resorts, cabin camps, summer homes, and commercial enterprises adjacent

---

37. C.J. Olsen, "The Proposed Invasion at Mt. Wheeler," *American Forests*, LXV (February 1959), 17-19, 40, 42.

38. *Reno Evening Gazette*, April 29, 1959. See the following page for a map of the Wheeler Peak Scenic Area.

39. U.S. Forest Service, Humboldt National forest, *The Proposed Glacier Scenic Area* (East Ely, Nevada, 1959), n.p.


U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE
WHEELER PEAK SCENIC AREA
HUMBOLDT NATIONAL FOREST
NEVADA
MT. DIABLO MERIDIAN
1967
LEGEND
FOREST SERVICE MAP CLASS C

to the area but within the proposed park boundaries "be abandoned in view of the active, nation-wide movement for establishment of the national park in the area." In response to these protests the Forest Service reluctantly agreed not to construct these improvements until the park issue was settled.[40]

In March 1959 the results and recommendations of the 1958 NPS field investigation of the Wheeler Peak-Lehman Caves area were submitted to the Advisory Board on National Parks, Historic Sites, Buildings and Monuments. The board, composed of eminent historians, architects, archeologists, and scientists from across the nation, had been established during the mid-1930s to evaluate and make recommendations to the Secretary of the Interior upon proposals for inclusion of new areas in the National Park System. On April 28 the board, while meeting at Shenandoah National Park, made the following recommendation:

> The Advisory Board on National Parks, Historic Sites, Buildings and monuments, having considered and recognized the scientific values of the Wheeler Peak-Lehman Caves region of the Snake Range, Nevada, finds that it is representative of the numerous Great Basin mountain ranges, and as such is of national significance, and is suitable for preservation as an area under the jurisdiction of the National Park Service.[41]

Upon learning of the advisory board's recommendation, Nevada Governor Grant Sawyer announced his enthusiastic support for the park designation.

Soon thereafter on June 30, 1959, a Nevada Foundation for a National Park was established with Peter T. Kelley, former director of the Nevada Department of Economic Development, spearheading the movement. Following a meeting with the White Pine Chamber of Commerce and Mines and representatives of the Great Basin National Park Association in May, Kelley was appointed public relations counsel for the effort to establish the foundation, composed of prominent Nevadans principally from outside White Pine County to lead the campaign for the proposed national park. It was felt that a body of this magnitude would help to secure the endorsement and support of many citizens and organizations and aid in obtaining the necessary financial support to achieve legislative enactment of the park. Heading the foundation as co-chairmen were the only two living former governors of the state – Vail M. Pittman and Charles H. Russell. Other officers of the foundation were Kelley, who was named secretary, Darwin Lambert, who was named as treasurer, and a board of trustees made up of twenty prominent Nevada citizens.[42]

Legislation was introduced in both houses of Congress on September 9, 1959, providing for establishment of Great Basin National Park. Senators Alan Bible and Howard W. Cannon introduced S. 2664 "to preserve for the benefit and inspiration of the people a representative segment of the Great Basin possessing outstanding ecological resources and geological and scenic values." In his introductory comments Bible observed:

> Mr. President, the interest and enthusiasm generated by the prospect of having this region designated as a national park, are by no means confined to my native State. Nature lovers and outdoor enthusiasts from many sections of the

---

40. Darwin Lambert, "Wheeler Peak Scenic Area," *National Parks Magazine*, XXXIII (April 1959), 13.

41. Darwin Lambert, "Great Basin 'Sky Island,'" *National Parks Magazine*, XXXIII (August 1959), 2, and *Nevada State Journal*, May 10, 1959.

42. *Nevada State Journal*, May 10, 1959, and Articles of Incorporation of Nevada Foundation For a National Park, June 30, 1959, 86th Congress, 1959-60, Box 21, Folder 347, Cannon Papers, University of Nevada, Las Vegas.

country have evinced more than passing interest in this proposal. On the home front, prominent Nevadans, including two former Governors, have joined in forming the Nevada Foundation for a National Park, and are vitally concerned with the passage of this legislation.

This scenic wonderland covers approximately 147,000 acres of the Snake Range and extends from the sagebrush desert up through the various life zones, and includes a small but active glacier on Wheeler Peak, 13,063 feet above sea level.

As any of my illustrious colleagues who have national parks within their States well know, the scenic and scientific attractions are a steady magnet for visitors from other States. To the uninitiated, Nevada is sometimes pictured as a barren and desolate wasteland, a slander that this beautiful national park would effectively destroy.

Cannon commented further:

Although perhaps little known, the proposed site is outstanding in scenery, vegetation, and geology. Wheeler Peak, with an elevation of 13,063 feet, is the second highest mountain in the State, and is the culminating point of the Giant Snake range.

At the east base of Wheeler Peak, is the Lehman Caves National Monument, a 1-square-mile area preserving exceptional limestone caverns. High on the north side of Wheeler Peak is the Matthes Glacier, the only known body of moving ice in the entire great basin region.

The area also includes towering rock formations, natural arches, and groves of huge twisted bristlecone pine, oldest trees in the world. There are also several jewel-like lakes in the area, including the scenic Stella Lake.

All these outstanding features combine to make the area suitable for designation as a national park. As such, it could serve our citizens as a site for nature study and appreciation, hiking, horseback riding, boating, picnicking, overnight camping, and for general sightseeing.[43]

That same day Representative Walter S. Baring introduced an identical bill, H.R. 9156, in the House.[44]

During November 1959 the recent discovery of beryllium deposits near Mount Washington was reported to National Park Service officials by the U.S. Bureau of Mines. When it appeared that this discovery might cloud the Senate hearing on S. 2664 scheduled for Ely on December 5, NPS Associate Director Ewind T. Scoyen advised that the hearing not be canceled. The Park Service position, according to Scoyen, "should be that we do not consider extraction of beryllium minerals to be an insurmountable obstacle to establishment of the park." He pointed out that "if necessary" the "authorizing legislation could include

---

43. *Congressional Record* – Senate, September 9, 1959, 86th Cong., 1st Sess., Vol. 105, Pt. 14, pp. 18679-80.

44. *Congressional Record* – House, September 9, 1959, 86th Cong., 1st Sess., Vol. 105, Pt. 14, p. 18864.

provisions for mining similar to those for Glacier Bay and Organ Pipe Cactus National Monuments."[45]

During December 5-7, 1959, hearings on S. 2664 were conducted in Ely to determine local and regional sentiment regarding the proposed legislation. Senator Bible presided over the hearings as chairman of the Subcommittee on Public Lands of the Senate Committee on Interior and Insular Affairs.[46] Some 68 oral and written statements and 90 communications were presented at the hearings. Of the 158 respondents 68 were favorable and 90 were unfavorable to the proposed legislation.[47]

At the hearings the park bill had the support of a wide variety of citizens and organizations. Appearing for the bill were the mayor of Ely; the chairman of the White Pine County commissioners, representing also the state association of county commissioners; a representative of Nevada Governor Grant Sawyer; Vail M. Pittman, representing the Nevada Foundation for a National Park; the president of the Nevada Federation of Business and Professional Women's Clubs; and a number of scientists, professors, and conservationists from Nevada and other states. As the Department of the Interior had not completed its formal report on S. 2664, Park Service representatives attended the hearings to answer questions but not to present testimony.

Proponents of the park legislation stressed the advantages of establishing a national park. Preservation of the natural and scenic qualities of the area would be insured. The reserve would enhance the prestige of White Pine County and the State of Nevada and serve as a major tourist attraction. The park would provide a facility for interpreting the aesthetic, educational, and scientific values of the Snake Range and the Great Basin. A park would benefit the local and regional economy of eastern Nevada by attracting increased tourism to the area.

Testimony opposing the park bill was presented by representatives of the Nevada Farm Bureau, Nevada Mining Association, Nevada Fish and Game Commission, Nevada Wool Growers, Nevada Cattle Association, U.S. Forest Service, and affiliated groups. The opposition stressed the continued "desirability of multiple use" management of the area as practiced by the Forest Service. Testimony opposing the park indicated that three existing uses which they feared the proposed park would ultimately eliminate were grazing, hunting, and mining. The recent discovery of beryllium deposits in the Mount Washington area was considered by most impartial observers, however, as being "the only conflicting use that might be of enough significance to delay or seriously modify the park proposal."[48]

The testimony presented at the hearings showed that the Forest Service, together with area mining, grazing, timber, and hunting interests, was mounting a major campaign to defeat the proposed bill. The arguments presented by these interest groups not only succeeded in defeating the bill but also echoed the principal objections that would be leveled against proposed park legislation for the next 27 years. Floyd Iverson, regional forester in charge of the Intermountain Region of the Forest Service, and John Herbert, a former supervisor

---

45. Recreation Resource Planning, Status Sheet, Great Basin, Nevada, [1959], Legislative Files, Division of Legislation, Washington Office, National Park Service.

46. "Conservation News Briefs," *National Parks Magazine*, XXXIII (December 1959), 13.

47. *1959 Ely Hearings*, pp. 1-250.

48. Darwin Lambert, "Great Basin – Pro and Con," *National Parks Magazine*, XXXIV (February 1960), 13, and Waite, "Proposed Great Basin National Park," Part II, pp. 760-65.

in Nevada National Forest, presented spirited testimony in defense of their bureau's multiple-use management policies at the Ely hearings:

> Some 85 percent of the proposed national park, therefore, is publicly owned land reserved for national forest purposes. This land is under intensive protection and administration for public purposes and is fully available for public use. Protection, conservation, and development of the resources are assured.
>
> The Forest Service administers national forest lands on a multiple-use basis. And under multiple-use management, all of the renewable resources are made available and managed so as to contribute most to the local and national economy on a sustained basis. Multiple-use management provides for the protection and perpetuation of scenic, aesthetic, and scientific features where such are present in the national forests. It provides for development and full utilization of recreation, conservation, and use of other resources of a given area.
>
> The Snake division, though small, is truly a multiple-use area. It is typical of many other western mountain ranges, and . . . does not have the unique and spectacular features that characterize the national parks.
>
> Resources of this national forest unit include watersheds highly important to the local economy and to the production of usable water for irrigation, domestic use, recreation, and fish and wildlife. The unit includes opportunities for hunting, fishing, camping, hiking, sightseeing, and other forms of outdoor recreation. The lands bear some 250 million board feet of timber, provide habitat for deer and other wildlife, and furnish forage for domestic livestock. Gold, silver, lead, and tungsten have been found and mined from these lands and recent activities indicate that other important minerals may be present in commercial form.

Under questioning the Forest Service officials admitted that the designation of the Wheeler Peak Scenic Area was "strictly an administrative matter" and had "no legal basis." Pursuant to the regulations of the Secretary of Agriculture, the regional forester was authorized to designate such areas and could abolish or change them at his discretion. As to whether the Wheeler Peak Scenic Area had been designated to defeat the idea of establishing a national park, the Forest Service officials stated:

> This is part of a much broader question which exists elsewhere in the country. We know at the present time of about 30 areas in the national forest that have been proposed by various individuals and groups to be made into State parks, national parks, national monuments, or recreation areas. And the total acres are some 10 or 12 million acres of national forest land that is involved. We are experiencing the same pressures of population and increase in demand for recreation use as a result of more leisure time, greater accessibility of more people. Where there's so many of these areas we would defer our normal administrative response to these questions or continue to develop national forests recreationalwise until these issues were settled. But we decided that there were too many areas and too large an acreage involved for us to do that and so we concluded that although our motivations might be questioned in some cases, that the thing for us to do was to act as we normally would in the course of our management development, and that was what we did in this case.[49]

---

49. *1959 Ely Hearings*, pp. 37, 39, 43-44, 47, 52-57.

One of the spokesmen for the grazing interests opposing the park bill was Stanley Ellison, president of the Nevada Wool Growers Association. Among other things, he stated:

> We are opposed to the park because the future welfare of Nevada depends upon the development and use of all its resources. Our sheep association believes in multiple use. This area is best managed under the multiple use principle, which allows use of the forage for livestock and game, allows hunting, and allows the development and use of minerals, water, timber and areas for recreation.
>
> Such areas as the Snake Range are particularly important to our livestock industry because they are very limited in the State. The summer range that these areas provide is a "key" period or vital link in the ranchers' year around operation of his livestock. Without such summer range the tax properties and base lands are thrown out of balance.
>
> We understand that livestock operators who own approximately 10,000 acres of farm and ranch land in the surrounding valleys, will be adversely affected by the establishment of the proposed national park. On the national forest area alone, these permittees now graze 2,811 head of sheep for a total of 8,433 sheep-months, and 857 head of cattle for 3,232 cow-months.
>
> In addition, the proposed park area will withdraw approximately 21,000 acres of land from grazing which is now being administered by the Bureau of Land Management of the U.S. Department of the Interior under the Taylor Grazing Act.
>
> Certainly the present conservative and wise multiple use of these and other lands is a tremendous factor in the economy and the structure of this State and the 11 Western States. If these industries are reduced or eliminated through curtailment of the multiple use of our Federal lands, which the establishment of a park does, our income will be reduced. Also there will be a reduction in tax funds for schools, roads and other public needs. Twenty-five percent of all moneys received during any fiscal year by the Forest Service is paid to the State for the benefit of public schools and public roads of the counties in which a national forest is located.
>
> We are also opposed to the creation of this park because it will be a breeding ground for predators. Predators cause large losses to livestock and game. It is estimated that to control such predators that would drift off the park, additional funds equal to 20 percent of the present predator budget of White Pine and Lincoln Counties would be needed.[50]

George N. Swallow, general manager of the C-B Land Co., represented the views of many area ranchers in opposing the bill at the hearings. In his testimony Swallow stated:

> I am representing Swallow Bros. Swallow Bros. is engaged in the ranching and livestock business in White Pine County, Nev. We operate 419 cattle in the area included in the 147,000 acres as proposed in Senate bill 2664 to establish the Great Basin National Park. Should this national park be established it would be impossible to continue operating the 419 head of cattle we now operate for

---

50. *Ibid*, pp. 71-72.

a 90-day period on the Humboldt National Forest on the Snake Range. The eventual elimination of these livestock will jeopardize Swallow Bros. livestock operation to the extent that it will be economically unsound to operate at all.

The fact that our livestock operation would be materially jeopardized and that we would be hurt financially is not the most important reason that we are opposed to establishing a national park in the White Pine County on the Snake Range. A basic principal is involved here, one of multiple use and the exploration and development of our agricultural, mineral, timbering, hunting, and fishing resources. We feel other livestock operations, mines, timber, hunting, and fishing all contribute to the general welfare of White Pine County, the State of Nevada, and the Nation.[51]

The mining interests were represented at the hearings by such men as James D. Williams, president and general manager of Mount Wheeler Mines, Inc., and Bruce Odlum, president of Beryllium Resources, Inc. Williams testified that the park bill should be withdrawn for three reasons:

1. The mineral potential of the area is very significant and with recent beryllium discoveries now a matter of public knowledge, search for this and other minerals in the area will undoubtedly be greatly accelerated. A park would forestall any such exploration and development and deny the United States the advantage of these necessary mineral discoveries.

2. Generally the physical characteristics of the area are not conducive to a park area. The usual recreational assets are totally absent and the cost of providing reasonable facilities would be prohibitive.

3. There are little if any natural wonders for the visitor to observe and most of the unusual in the way of rare trees is located on presently held mining claims.[52]

Odlum supported Williams' testimony by describing the negative impact that the park's establishment would have on mining development:

The aforementioned beryllium ore occurs at Mount Wheeler and it is the intention of Beryllium Resources to expand its exploration and development of its present mining activities at Mount Wheeler in the hopes of developing a major beryllium mining industry in the area. It is the hope that with a successful mining enterprise, ultimately the extraction plants would be constructed in the area, thereby contributing to Nevada's industrial complex and economic wealth.[53]

While the proposed park legislation continued to be debated, the Pacific Southwest Field Committee Conference was held in Ely on October 19-20, 1960. The conference, one of six regional conferences held in the United States each year to coordinate the work of the various Interior Department bureaus into a unified effort, was attended by regional directors of the department's bureaus west of the Continental Divide. This conference was held in Ely because of the interest generated by the proposed park. The meeting focused on

---

51. *Ibid.*, p. 225.

52. *Ibid.*, p. 203.

53. *Ibid.*, p. 213.

coordinating the efforts of the Interior bureaus for the proposed park's establishment. It was generally agreed that such a reserve would be an economic asset to eastern Nevada and could be made more acceptable to those interests opposing the park with certain land use modifications. The meeting supported further studies including a beryllium mineralization investigation of Mount Washington by the U.S. Bureau of Mines, a geological study of Wheeler Peak by the U.S. Geological Survey, and a study of local grazing, conservation, and wildlife problems by other Interior Department bureaus.[54]

Because of continuing opposition S. 2664 never reached a vote during the 86th Congress, primarily as a result of opposition from mining and grazing interests. Thus, Senators Bible and Cannon and Representative Baring introduced new identical bills (S. 1760 on May 3, 1961, and H.R. 6873 on May 8, 1961) in the first session of the 87th Congress for establishment of a Great Basin National Park. The new bills made significant concessions to the mining and grazing interests and reduced the size of the proposed park from 147,000 acres to 124,540 acres. When he introduced S. 1760 on the Senate floor Bible stated:

> During the past 2 years, extensive hearings in the field have been held to attempt to reconcile the divergent views of the conservationists on the one hand, and local mining and grazing interests on the other.
>
> Of particular concern was the discovery of a very valuable beryllium deposit on the borders of the proposed park area. Over half a million dollars is being currently expended by one of America's largest mining companies in exploration to discover the extent and location of this mineral so necessary in the furtherance of our space program. In order to protect the possibility of establishing a valuable industry that could employ many men in this presently depressed mining area, I have included in the present measure a section that would permit the continuation of prospecting, exploration, and mining within the park, limiting the activity to that necessary to the actual process of valid mining requirements.
>
> Likewise, I have included a section that would permit present grazers to continue the use of the park area for 25 years plus the lifetime of the holders of grazing permits.
>
> Both of these sections have precedent in other areas and cannot be considered an innovation in the establishment of National Parks.[55]

The Department of the Interior quickly recommended enactment of S. 1760 subject to several amendments. In a letter to Clinton P. Anderson, chairman of the Senate Committee on Interior and Insular Affairs on June 16, 1961, Secretary of the Interior Stewart L. Udall commented on the boundary reduction from the earlier park proposal:

> The bill describes an area that is smaller by some 22,000 acres than the 146-540-acre recommended for park establishment as a result of studies conducted by the National Park Service. The boundary in the bill eliminates about 14,320 acres of land lying in the northeast portion of our original study area. While these lands are ecologically significant, similar but less representative biological

---

54. *Ely Daily Times*, October 21, 1960, and Waite, "Proposed Great Basin National Park," Part II, pp. 766-67.

55. *Congressional Record* – Senate, May 3, 1961, 87th Cong., 1st Sess., Vol. 107, Pt. 6, p. 7037, and *Congressional Record* – House, May 8, 1961, 87th Cong., 1st Sess., Vol. 107, Pt. 6, p. 7571.

habitats are included within the park as proposed in S. 1760. We do not, therefore, consider the excluded area essential to the project.

S. 1760 also eliminates from the original study area the equivalent of about 12 sections of land situated along the west boundary of the proposed park. We understand that there is a proposal to delete two additional sections along this westerly boundary. If the proposal is accepted it will result in an aggregate reduction in this portion of the study area of approximately 8,960 acres of unsurveyed land. These lands contain an undetermined number of patented and unpatented mining locations. We further understand that extensive explorations for beryllium and other minerals may soon be undertaken in this general area and that, if these sections are excluded, much of the exploratory work affecting the park lands could be done by slant drilling from these locations outside the park.

We would prefer to have these sections proposed for exclusion remain in the park because they are an integral part of the physiographic features originally recommended for preservation as a unit of the National Park System. Moreover, such inclusion would not adversely affect valid existing claims, locations or entries, and the removal of minerals could be accomplished in accordance with section 5 of the bill. Nevertheless, we feel that exclusion of these lands on the west side of the proposed park would not detract seriously from its values. The retracted boundary falls about midway between the foot of the range and its crest. While this location will increase the protective and administrative problems, it is far superior to a boundary along the crest, in this instance, since the high peaks are a significant feature of the proposed park.

Udall also proposed that Section 7 of the bill be revised to eliminate "some ambiguities" on grazing and "to reflect an intent that when lands are transferred from a national park status no greater grazing privileges are acquired." The estimated cost of establishing and operating the new park would require annual expenditures in excess of $1,000,000, including $150,000 to purchase the private inholdings.[56]

Several days later Secretary of Agriculture Orville L. Freeman wrote to Senator Anderson giving his department's response to S. 1760. Among other things, he observed:

Approximately 94 percent of the lands making up the national park that this bill would create are national forest lands and have been under the jurisdiction and management of this Department for more than 50 years.

We believe that the public interest has been, and would continue to be, adequately served by retention of these lands in national forest status and continued management under principles adopted by the Congress for the national forests in the Multiple Use-Sustained Yield Act of June 12, 1960. We further believe that the bill could have undesirable results from the standpoint of both the national parks and the national forest.

However, if Congress concluded that "creation of a national park from these national forest lands" was "desirable," the department would not raise objection if the bill was amended.

---

56. Udall to Anderson, June 16, 1961, in *1961 Hearing*, pp. 4-7.

Freeman defended Forest Service administration of the Snake Division of Humboldt National Forest and elaborated on the beneficial economic impact of those management policies. He commented:

> The 117,100 acres of national forest land which make up almost all of this proposed national park are a part of the Snake division of the Humboldt National Forest. . . . As a part of the national forest system these lands and their resources have been, and are being protected, husbanded, and made available for utilization under the multiple-use principles appropriate to national forest lands.
>
> The recreational resources are getting increased use each year. To accommodate the 51,000 recreation visits in 1960, picnic, camping, and trailer parking facilities have been provided. Additional facilities are planned to meet future needs as these develop. The timber resources, though not large, would sustain an annual sustained cut of 1 to 1-1/2 million board feet. Some 1,200 Christmas trees are sold annually, and an estimated 6,000 pounds of pinon nuts are harvested in good years. The area provides key summer range for 2,811 sheep and 857 cattle under national forest grazing permits. The mineral resources have been prospected and are being developed under the general mining laws. The area's estimated game herd of 3,000 mule deer has been actively hunted each year by some 500 hunters. The water resource is characteristic of high mountain ranges that rise out of desert surroundings. It provides domestic water and water supply for some 10,000 acres of nearby farms and ranch lands.
>
> This Department believes that the land and resources of this area and the demands for resources and services meet the criteria for national forest land; that our administration of this area has been in accord with the policies and directives of Congress; and that such administration has been a direct benefit to the surrounding economy and people.

The Secretary of Agriculture was particularly irked by the fact that S. 1760, with its concessions to mining and grazing interests, would blur the traditional distinction between national parks and national forests. In this vein, he noted:

> Normally, national parks serve two primary purposes – preservation and recreation. They are not normally open to mineral exploration and development, to livestock grazing, nor to hunting under State laws; likewise, the timber in national parks is not available for commercial utilization.
>
> Under S. 1760, however, special provisions are included which would permit continuation of prospecting and mining and livestock grazing. The minor amount of fishing in the area would also continue as in other parks. These special provisions of the bill would dictate the same type of use for the proposed national park that the area now receives as a national forest with the exception that the small amount of logging now underway would be precluded and hunting would no longer be permitted under State laws. Some form of hunting could, we understand, be carried on under regulations of the Secretary of the Interior. Arrangements to allow this have been under consideration.
>
> Enactment of this bill to establish a national park with these specially permitted uses would make the park similar in its objectives to the national forests and would partially destroy what has been the traditional and well-understood

distinction in both purpose and management between the national parks and the national forests. This, we believe to be undesirable.

The uses that would be permitted in the proposed park and their similarity to the national forest uses that are now underway indicate that no special purpose would be served by converting this area from national forest to national park status. It is possible that advocates of a national park seek primarily to attach the national park name to this area with the hope of capitalizing commercially on that name by developing sufficient additional tourism.

While Freeman recommended various minor boundary adjustments, his main concern focused on the 55,000 acres that would remain in the Snake Division if the park were established. This area, primarily at the south end of the park, would be isolated from other parts of the national forest. As these lands would be difficult for the Forest Service to manage, it "would be desirable that this residual area be added to the park or even more perfectly be returned to public domain." Thus, he recommended that S. 1760 be amended to address this concern.[57]

A public hearing on S. 1760 was conducted in Washington, D.C., on August 3, 1961, with Senator Bible, Chairman of the Subcommittee on Public Lands of the Committee on Interior and Insular Affairs, presiding. Opening testimony was presented by Senator Cannon of Nevada:

I believe that the language of S. 1760 has minimized the possibilities of adverse effect to the greatest extent practicable. The concessions made to the mining and grazing interests are rather magnanimous; and though not without precedent, they are not in any sense common to the national park program.

I believe that to further modify the language would negate the advantages which might otherwise result from a national park designation.

May I comment briefly on what I feel to be the advantages which would accrue not only to the Ely area, but to the entire State from the creation of this park.

First of all, I think it is undeniable that Ely, as a one-industry community, would benefit economically by the type of diversification which a park would afford. The history of national park visitation gives ample evidence as to the increase which accrues once a park is created. For example, in the Great Smoky Mountains National Park in North Carolina, the travel increased by 88 percent in a 10-year period, and the number of visitors increased by 140 percent during this same period following the establishment of this area as a national park. The 2-1/2 million visitors in 1956 spent over $28 million in the cities and towns around the park area.

In addition to the economic advantages, I feel that the area involved is of such unusual nature as to warrant park designation simply on the basis of its aesthetic value.

Unless we take steps to protect those areas possessing such outstanding features, they will gradually be overrun and reformed until such time as they no longer exist for the benefit and pleasure of future generations.

---

57. Freeman to Anderson, June 20, 1961, in *1961 Hearing*, pp. 7-9. Freeman sent an identical letter to Wayne N. Aspinwall, Chairman of the House Committee on Interior and Insular Affairs, on June 21, 1961, concerning H.R. 6873. Legislation Files, Division of Legislation, Washington Office, National Park Service.

At the hearing testimony was presented by Secretary Udall, NPS Director Conrad L. Wirth; U.S. Forest Service Assistant Chief Edward C. Crafts; Darwin Lambert; Nevada Fish and Game Commission Secretary William H. Gravelle; and Louis S. Clapper, Chief, Division of Conservation Education, National Wildlife Federation. Udall and Wirth reflected the aforementioned Interior Department's position on the proposed legislation, while Crafts did the same for the Agriculture Department. Lambert reiterated the long publicized views of the Great Basin National Park Association, while Gravelle and Clapper represented the opposition views held by hunting and wildlife interests. Various communications were also received by the subcommittee from conservation and wildlife organizations, mining companies, ranchers, and state agencies representing their long-held views on the park proposal.[58]

On September 12, 1961, the Senate Committee on Interior and Insular Affairs recommended passage of S. 1760 subject to several amendments. The principal changes recommended by the committee were the grazing amendment proposed by the Department of the Interior and the elimination of two additional sections in the Mount Washington area, thus reducing the size of the proposed park to 123,260 acres.[59]

S. 1760 reached the Senate floor on January 23, 1962, and two days later the amendments recommended by the Committee on Interior and Insular Affairs were adopted "en bloc" without objection. During debate of the bill on January 25, Senator Bible defended the park proposal, explaining why he felt its establishment "would be to the benefit of the people of his State, as compared with the uses which in the past have been made of the area when it was national forest land." He observed:

> I believe the status of a national park will increase the national significance of the area, and I believe it will thus become more attractive to those who travel in the West. We in Nevada conceive of this park as being part of a group of great western scenic attractions located in Utah and Nevada. For example, it will tie in very well with Zion National Park, Bryce Canyon National Park, Lake Mead Recreational Area, and Grand Canyon National Park, which is located in northern Arizona. I am convinced that the establishment of a national park in this area will give it far greater attractiveness and will make it of far more national significance than if the land continued to be operated by the Forest Service.
>
> I may say that until the present time, until an attempt was made to create a national park in the area, the whole area rather fell into disuse. But when the Forest Service found that a national park may be created there, the Forest Service showed intense interest in improving the area itself. But I am convinced that it would be better to establish a national park there.

After further debate the amended bill was passed by the Senate and sent to the House, where it was referred to that chamber's Committee on Interior and Insular Affairs on January 26.[60]

---

58. *1961 Hearing*, pp. 10-86.

59. U.S. Congress, Senate, Committee on Interior and Insular Affairs, *Great Basin National Park, Nev.*, S. Rept. 983, 87th Cong., 1st Sess., 1961, pp. 1-12.

60. *Congressional Record* – Senate, January 23, and 25, 1962, 87th Cong. 2d Sess., Vol. 108, Pt. 1, pp. 736-37, 894, and 908-16, and *Congressional Record* – House, January 26, 1962, 87th Cong., 2d Sess., Vol. 108, Pt. 1, p. 1018.

President John F. Kennedy endorsed the park legislation in a "Special Message to the Congress on Conservation" on March 1, 1962. In the speech he stated:

> Last year's Congressional approval of the Cape Cod National Seashore Area should be regarded as the path-breaker for many other worthy park land proposals pending before Congress. I urge favorable action on legislation to create . . . Great Basin National Park in Nevada. . . . Acquisition of these park lands would be financed through the "Land Acquisition Fund."[61]

After the bill was referred to the House Committee on Interior and Insular Affairs the mining, grazing, and hunting interests, to whom concessions had already been made, united to further dilute its provisions. At a meeting of these interest groups in Ely on June 6, 1962, four amendments to the proposed legislation were adopted. Representative Baring, who had earlier introduced an identical bill (H.R. 7863) to S. 1760, now became the rallying point for these interests who still felt that S. 1760, as amended, was detrimental to their economic welfare. Accordingly, Baring recommended four amendments to the park bill at a meeting of the House Committee of Interior and Insular Affairs on June 11, 1962. These proposals, which limited the park boundaries to the Snake Creek drainage and northward and which resulted in the bill dying in committee, were: (1) a decrease in the park acreage from 123,260 acres to some 53,120 acres; (2) provision that all laws of the United States related to mining should extend to the park subject to such regulations as the Secretary of the Interior might prescribe for specific uses of park lands, but that such lands located and patented under the mining laws should be used solely for mining or processing operations or uses reasonably incident thereto; (3) continuation of grazing on park lands without reduction or eventual termination, thus elevating grazing permits to the status of a right or interest in federal lands; and (4) continuation of hunting in the park under state regulation with the proviso that the Secretary of the Interior could designate closed areas.[62]

In response to a request by Wayne N. Aspinwall, Chairman of the House Committee on Interior and Insular Affairs, Secretary of the Interior Udall submitted comments on the Baring amendments on July 9, 1962. The secretary "strongly" recommended "against adoption of the proposed amendments." He stated:

> We believe that S. 1760, as it passed the Senate on January 25, 1962, embodies the minimum requirements in terms of area and land use for the proposed Great Basin National Park. The amendments now offered, if adopted, would so diminish the area and subject the remaining lands and features to such impairment that it would not qualify for recognition as a national park.
>
> Section I of the bill would be amended to exclude about 70,240 acres from the proposed boundary. This would eliminate the entire southern third of the proposed park plus peripheral segments to the north and east containing resources of great recreational, ecological and biological significance.

Among the significant resources that would be eliminated from the park by such amendment were lowland desert, overthrust shield, stands of Bristlecone pines, the Lexington Arch and Big Wash Canyon, native cutthroat trout in Pine and Ridge creeks, and

---

61. "Special Message to the Congress on Conservation, March 1, 1962," *Public Papers of the Presidents of the United States, John F. Kennedy, Containing the Public Messages, Speeches, and Statements of the President, January 1 to December 31, 1962* (Washington, Government Printing Office, 1963), p. 179.

62. Waite, "Proposed Great Basin National Park," Part II, pp. 770-73.

the Willard Creek Valley. According to Udall, elimination of these areas from the proposed park would

> completely disrupt the ecological concept of the Great Basin story. The reduced area could not protect and display the great physiographic, geologic, biotic, and geographic features that typify this region of North America. Moreover, the roads, parking overlooks, interpretive stations, and campsites which are needed to interpret and make these areas accessible could not be developed, and the few alternate sites would be inadequate.[63]

The park issue lay dormant until June 26, 1963, when Congressman Baring introduced H.R. 7283, a bill including the proposals he had made in committee the previous year. Since this park bill was unsuitable to park proponents it languished in committee.[64]

President Kennedy continued to support the park legislative efforts of Senators Bible and Cannon. In remarks at the Convention Center in Las Vegas on September 28, 1963, he urged:

> And . . . the remaining unspoiled shoreline of Lake Tahoe, the gem of the Sierras, must be preserved for future generations, along with the Great Basin National Park, as proposed by your Senators.[65]

On March 24, 1964, some nine months after Baring introduced H.R. 7283, the Department of the Interior responded to the measure. In his letter to Representative Aspinwall, Assistant Secretary of the Interior John A. Carver, Jr., stated:

> We favor the establishment of a Great Basin National Park in the area of the Snake Mountain Range in east-central Nevada. We are convinced, however, from our studies of the area that the 53,120 acres set aside under the bill are not sufficient to include representative examples of the varied and striking terrain, geologic features, weather conditions, and plant and animal life in the Great Basin Region, or to provide adequate space for visitor use. In addition, we believe that the provisions of the bill governing mining, grazing, and hunting within the park do not adequately protect park values.

Thus, the department submitted a substitute draft bill which met "what we regard as minimum requirements in terms of area and land use for a Great Basin National Park." The draft bill was "identical in substance to S. 1760, 87th Congress, as passed by the Senate on January 25, 1962." According to Carver, the draft bill provided for a park comprising 123,360 acres that "would typify the Great Basin and provide adequate space for the development of roads, parking overlooks, interpretive stations, and campsites for visitor use." The draft bill also provided "for the return of approximately 55,000 acres of lands in the Humboldt National Forest, which are not included within the park but are adjacent

---

63. Udall to Aspinwall, July 9, 1962, Legislative Files, Division of Legislation, Washington Office, National Park Service.

64. *Congressional Record* – House, June 26, 1963, 88th Cong., 1st Sess., Vol. 109, Pt. 9, p. 11793.

65. "Remarks at the Convention Center in Las Vegas, Nevada, September 28, 1963," *Public Papers of the Presidents of the United States, John F. Kennedy, Containing the Public Messages, Speeches, and Statements of the President, January 1 to November 22, 1963* (Washington, Government Printing Office, 1964), p. 748.

thereto, to the administrative jurisdiction of the Secretary of the Interior," as the Department of Agriculture had recommended in its report on S. 1760 in 1961.[66]

No further legislative action on the proposed park occurred in the 88th Congress, but in the first session of the 89th Congress three park bills were introduced. On January 15, 1965, Senators Bible and Cannon introduced the first of these bills as S. 499, which was virtually identical to the measure passed by the Senate on January 25, 1962. In his remarks on the floor, Bible observed that in "view of the accepted urgency to protect great natural assets such as the area under consideration, I am hopeful that favorable action will be had during the 89th Congress."[67]

Several weeks later, on February 8, 1965, President Lyndon B. Johnson lent his support to the effort to establish Great Basin National Park. In a "Special Message to the Congress on Conservation and Restoration of Natural Beauty" on February 8, 1965, Johnson noted:

> Our present system of parks, seashores and recreation areas – monuments to the dedication and labor of far-sighted men – do not meet the needs of a growing population.
>
> The full funding of the Land and Water Conservation Fund will be an important step in marking this a Parks-for-America decade.

The president proposed to use this fund to acquire lands needed to establish such areas as Great Basin National Park.[68]

The Interior and Agriculture departments both submitted reports on S. 499 to Senator Henry M. Jackson, Chairman of the Committee on Interior and Insular Affairs, on May 14 and May 21, 1965, respectively. While echoing his earlier response to S. 1760, Secretary of the Interior Udall observed that provisions for mining and grazing, similar to those in S. 499, had been included in the Canyonlands National Park bill in the 88th Congress. However,

> on the disagreeing votes of the two Houses of Congress on the amendments of the House of Representatives to that bill, the committee of conference deleted the mining and mineral leasing provisions and limited the time for grazing to the term of the existing lease, permit, or license and one period of renewal thereafter. The Canyonlands National Park bill was enacted into law in this form.
>
> While special provisions for limited mineral activity and grazing may be unobjectionable in certain circumstances, it is our judgment that in the long run these uses conflict with the public enjoyment of a park. Such provisions may therefore require further congressional consideration at a later date. For this

---

66. John A. Carver, Jr., Assistant Secretary of the Interior to Aspinwall, March 24, 1964, Legislative Files, Division of Legislation, Washington Office, National Park Service.

67. *Congressional Record* – Senate, January 15, 1965, 89th Cong., 1st Sess., Vol. 111, Pt. 1, pp. 696, 705, and "The Conservation Docket," *National Parks Magazine*, XXXIX (April 1965), 21.

68. "Special Message to the Congress on Conservation and Restoration of Natural Beauty, February 8, 1965," *Public Papers of the Presidents of the United States, Lyndon B. Johnson, Containing the Public Messages, Speeches, and Statements of the President, 1965 (In Two Books), Book I – January 1 to May 31, 1965* (Washington, Government Printing Office, 1966), p. 158.

reason we prefer that the park be established without authorization for such uses.[69]

In his report to Senator Jackson Secretary of Agriculture Freeman also reiterated much of his earlier report on S. 1760. It is interesting to note that he repeated his earlier concerns about a blurring of distinction between national parks and national forests based on the mining and grazing provisions in S. 499, an issue alluded to by Udall in his reference to the Canyonlands legislation. Freeman, for his part, noted:

> Continuation of prospecting and mining and livestock grazing which would be permitted by the special provisions in S. 499 in the proposed Park are generally considered nonconforming uses of a National Park.
>
> We understand that the provisions of S. 499 will, under the physical and other circumstances existing for this area, meet minimum requirements for National park needs. However, we are concerned that as uses which are normally not permitted in our National Parks are provided for in legislation the traditional, well understood, and desirable distinction in both purpose and management between the National Parks and the National Forests will be lost. We believe this would be undesirable and that it is important to retain this long-established distinction in the administration of our Federal lands.[70]

In 1965 Representative Baring introduced two park bills. On March 11 he submitted H.R. 6122, which was virtually identical to legislation (H.R. 7283) he had initiated in June 1963.[71] Later on July 26, 1965, Baring introduced H.R. 10084, which called for establishment of a 28,000-acre Great Basin National Recreation Area to be administered by the Department of Agriculture.[72]

The Great Basin National Recreation Area bill provided that the Secretary of Agriculture "shall permit hunting, fishing, and trapping on the lands and waters" of the area "in accordance with the applicable laws and regulations of Nevada." Under the proposed legislation the secretary would

> administer the area for the general purposes of public recreation, benefit, and use, and in a manner that will preserve, develop, and enhance, so far as practicable, the recreation potential, and that will preserve the scenic, scientific, and other important features of the area, consistent with applicable reservations and limitations relating to such area and with other authorized uses of the lands and properties within the area.

---

69. Udall to Jackson, May 14, 1965, 89th Congress, 1965-66, Box 29, Cannon Papers, University of Nevada, Las Vegas.

70. Freeman to Jackson, May 21, 1965, 89th Congress, 1965-66, Box 29, Cannon Papers, University of Nevada, Las Vegas.

71. *Congressional Record* – House, March 11, 1965, 89th Cong., 1st Sess., Vol. III, Pt. 4, p. 4825. The Interior Department reacted to this bill as it had to H.R. 7283 on March 24, 1965. Udall to Aspinwall, May 14, 1965, 89th Congress, 1965-66, Box 29, Cannon Papers, University of Nevada, Las Vegas. On June 4, 1965, the Agriculture Department responded by urging adoption of Interior's substitute bill if the park was established.

72. *Congressional Record* – House, July 26, 1965, 89th Cong., 1st Sess., Vol. III, Pt. 13, p. 18167.

The secretary would provide for four principal activities, "subject to a general regulation designed to preserve the scenic, scientific, and recreational values of the area." These were:

1. General recreation use such as, but not limited to, skiing, camping, hunting, fishing, picnicking, hiking, ice skating, bathing, boating.

2. Grazing.

3. Mineral leasing and mineral entry.

4. Vacation cabin site use, and privately owned commercial recreational development use, in accordance with exiting policies of the Department of Agriculture relating to such uses.[73]

On the same day that he introduced H.R. 10084 Baring issued a press release stating that the bill, together with H.R. 6122, presented "the people of Nevada a choice of either a small park or a recreation area" and represented his "honest attempt to effect a compromise of this highly controversial issue." The press release noted that H.R. 10084 "would pave the way to the creation of a $20 to $30 million winter sports complex and guarantee protection for grazing, mining, and hunting and scenic resources of White Pine's South Snake Range." The release went further:

> The development of national recreation under the Forest Service is a creative and progressive way to solve the increasing demand for outdoor recreation. At the same time, basic Western industries are guaranteed their right to develop and use public land resources. . . . My bill calls for cooperation between all levels of government and private enterprise with none having monopoly.
>
> I have drafted the Great Basin National Recreation Area bill so that there will be checks and balances all along the way. This can only lead to wise use and development under the multiple use policy and the creation of a harmonious atmosphere for all levels of government.
>
> Nevada Fish and Game will continue to have jurisdiction over wildlife, hunting, trapping, and fishing. The county and State will remain in jurisdiction in civil and criminal cases. Their right to tax will also be maintained. Under a National Park system it would be severely impaired.
>
> National Park Policy prohibits year-round recreation, . . . but with the Recreation bill, year-round recreation would be inevitable. A Forest Service study shows that ski runs would be superior to those in Sun Valley, Idaho. In addition, hunting is superb in the area.

The bill quickly received endorsement from labor unions and the Nevada Farm Bureau, Nevada Mining Association, Central Committee of Nevada, representing stockmen in the state, Nevada Wildlife Federation, and State Cattlemen's Association.[74]

---

73. H.R. 10084, 89th Cong., 1st Sess., July 26, 1965, 89th Congress – 1965, Baring Bill H.R. 10084, Great Basin Recreation Area, Box 26, Baring Papers, Nevada Historical Society, Reno.

74. Press Release, "Baring Introduces National Recreation Area Bill," July 26, 1965, 89th Congress – 1965, Baring Bill: H.R. 10084, Great Basin Recreation Area, Box 26, Baring Papers, Nevada Historical Society, Reno.

Mount Moriah Division of Humboldt National Forest, and the Wheeler Peak Scenic Area be evaluated for registry as natural landmarks. Concerning the Wheeler Peak Scenic Area, the inventory stated that it was "an outstanding example of scenic grandeur with many other natural values." The geological values included the mountain system, glacier activity, mountain streams, and caves, and the ecological values were alpine tundra, boreal and coniferous forests, and bristlecone pine stands. Rather than select sites to represent these values, the inventory recommended that the entire area be evaluated as a natural landmark.[78]

The study suggested four potential areas for Great Basin National Park. The four areas, the evaluation of which were forwarded to Congress in 1977, were the Snake Range, White Mountains, Railroad Valley, and Monitor Valley.[79]

Local White Pine County interests continued to debate the merits of establishing Great Basin National Park. In January 1977, for instance, the Lehman Caves superintendent's annual report stated:

> The Great Basin National Park issue is again being brought out into the open. In December 1976, the Chamber of Commerce held a meeting at the Nevada Hotel in Ely with all Service Clubs in attendance. The guest speaker was Dr. Robert S. Waite of Weber State College in Utah. He completed his Doctors Thesis on Great Basin National Park. All Ely Service Clubs, Chamber of Commerce, and the newspaper were in support of the park. The local ranchers, miners, and hunters opposed the park vigorously. They felt that many of Dr. Waite's economic figures were in error and that the Chamber of Commerce had been secretive in their efforts to gain a park. Previously Railroad Valley was a site to be considered for a Great Basin National Park, but this summer oil was discovered and the area is being developed for that purpose. As of this date, I believe this proposal has been defeated, but Kennecott Copper Company does not have many more years of operation left in Ely, Nevada and the subject will surface again in future years.[80]

In 1979 a reconnaissance survey was initiated by the National Park Service under Section 8 of the General Authorities Act of 1970, as amended by Public Law 94-458, to determine whether any of the four recommended park areas should be studied in detail. During the early phase of the survey, three additional areas (Big Smoky Valley/Toiyabe Mountains, Ruby Mountains, and Roberts Mountains) were recommended for study by various agencies and individuals. When these were evaluated, the Ruby Mountains and Roberts Mountains were determined not to satisfy Park Service criteria for a national park representing the Great Basin. The third area, Big Smoky Valley/Toiyabe Mountains, was added to the Monitor Valley study area. Thus, four areas were evaluated in the reconnaissance survey:

---

78. *Inventory of Natural Landmarks of the Great Basin* by Vernon B. Bossick and Wesley E. Niles, Department of Biological Sciences, and William A. McClellan, Edward H. Oakes, John R. Wilbanks, Department of Geoscience, The University of Nevada, Las Vegas, Compiled for the National Park Service, United States Department of the Interior, August 20, 1975, pp. 268-69, 324-27, 532-36, 667.

79. U.S. Department of the Interior, National Park Service, *Reconnaissance Survey, Great Basin, Nevada/California*, January 1980, p. 1, and U.S. Congress, House, Committee on Interior and Insular Affairs, *Proposed Great Basin National Park, Nev., Submitted as an accompanying part of the Communication from The Secretary of the Interior transmitting Reports on Studies of New Areas with Potential for Inclusion in the National Park System*, H. Doc. 95-264, 95th Cong., 1st Sess., 1977, pp. 1-4.

80. Superintendent's Annual Report, Lehman Caves National Monument, 1977, Vertical Files, Great Basin National Park. Similar observations appeared in the Lehman Caves superintendent's annual report in January 1980. Superintendent's Annual Report, Lehman Caves National Monument, 1980, Vertical Files, Great Basin National Park.

While the Baring bills failed to move out of committee, the idea of a national park in the Snake Range continued to receive publicity. In a "Special Message to the Congress Proposing Measures To Preserve America's Natural Heritage" on February 23, 1966, President Johnson again recommended approval of the Great Basin National Park proposal.[75]

During that same month the first widespread publicity was given to the destruction of a 4,900-year-old bristlecone pine tree (the oldest known living tree on earth) near Wheeler Peak. The tree, which had been cut down and carried away by a science student assisted by U.S. Forest Service personnel, had been selected in August 1964 because the student considered it old enough to help date Little Ice Age phenomena. Its world-record age, however, was not suspected until it was killed. The facts of this mistake, which placed in question the inadequate background in bristlecone research of the student and the Forest Service, spread through scientific circles during 1965 and reached the public in "comprehensible form" in February 1966.

Conservation organizations reacted sharply, calling for establishment of Great Basin National Park to afford immediate protection to the bristlecone pines near Wheeler Peak. These groups were further alarmed because the Forest Service permitted bulldozers to tear through bristlecone pine stands in mining claim locations in the Mount Washington area. Thus, these organizations initiated appeals for a considerably larger national park than recent proposed legislation had provided.[76]

With the demise of the three bills in 1965 the effort to create Great Basin National Park lost momentum. In April 1966 some discussions were initiated by Park Service officials with Secretary Udall and the Nevada congressional delegation for a 94,680-acre national park, but the talks were generally informal and inconsequential. For nearly a decade thereafter little activity of consequence would be undertaken, although the Park Service would keep its endorsement of the park idea alive through two major documents.

In 1972 the Park Service published *Part Two of the National Park System Plan: Natural History,* a document analyzing natural history themes and their adequacy of representation within the system. As a region the Great Basin received an estimate of only "10 percent adequacy of representation." At that time, the only regions in the nation that received a lower ranking were those without any representation in the system.[77]

That same year the National Park Service let a contract to the Departments of Biological Sciences and Geoscience of the University of Nevada, Las Vegas, for preparation of an *Inventory of Natural Landmarks of the Great Basin.* The study was designed to inventory and list by priority natural features with potential for nomination to the National Registry of Natural Landmarks and recommend an area that could be added to the National Park System as Great Basin National Park. The study recommended that Lexington Arch, the

---

75. "Special Message to the Congress Proposing Measures To Preserve America's Natural Heritage, February 23, 1966," *Public Papers of the Presidents of the United States, Lyndon B. Johnson, Containing the Public Messages, Speeches, and Statements of the President, 1966 (In Two Books), Book I – January 1, to June 30, 1966* (Washington, Government Printing Office, 1967), pp. 195-203.

76. Darwin Lambert, "Over the Years With Great Basin Park," *National Park Magazine,* XL (June 1966), 12-16. Further data on Forest Service research and policy relating to bristlecone pines may be found in Donald R. Currey, "An Ancient Bristlecone Pine Stand in Eastern Nevada," *Ecology,* XLVI (Summer 1965), 564-66; *Ely Daily Times,* September 19, 1966; and U.S. Department of Agriculture, Forest Service, *The Bristlecone Pine: Nature's Oldest Living Thing,* 1983.

77. Oulman, "Copper, Cows, and Crown Jewels: A Case Study Analyzing the Context of Debate Surrounding Establishment of Great Basin National Park," pp. 16-18.

In July 1980 two workshops were held in Baker and Ely to provide the public with information on the study and solicit comments and concerns. The major issues raised by the public focused on privately-owned lands, mining, grazing, increased tourism and resource use, local tax support base loss, additional federal regulations, and the MX missile proposal. Two additional workshops on the draft alternatives were held in September in Baker and Ely. The results of public participation and comments by the involved federal and state agencies were incorporated in the final document printed in February 1981.

The study identified seven alternatives as feasible means to protect and manage the area's significant resources, while providing educational, interpretive, and recreational opportunities. While the alternatives differed in approach, they had five objectives in common with varying levels of achievement. These were to:

1. Identify and protect natural, cultural, scenic, and recreational resource values representative of the Great Basin region

2. Increase recreational, interpretive, and educational opportunities for people to understand and appreciate the attributes of the Great Basin environment

3. Recognize the existing Great Basin lifestyle, particularly the rich and continuing heritage of ranching and mining

4. Balance preservation efforts with the need to maintain and enhance the local economy's viability which is largely dependent upon use of local resources

5. Consider the Great Basin and the Snake Range/Spring Valley area as one overall resource which includes the natural values that are to be preserved as well as the economic and social attributes[83]

By the mid-1980s the economic picture in eastern Nevada was changing. Mining was in a prolonged depression and the grazing interests' clout was ebbing. Tourism was seen as Nevada's new ticket to prosperity. Environmental issues were becoming increasingly popular in Reno and Las Vegas, where the Nevada population centers and votes were located. Thus, the stage was set for the final campaign to establish Great Basin National Park.

The final campaign commenced in 1985 in conjunction with proposed legislation to designate national forest lands in Nevada for inclusion in the National Wilderness Preservation System. That year four Nevada wilderness bills were introduced in the House of Representatives. On March 20 Senators Paul Laxalt and Chic Hecht introduced S. 722 designating 136,900 acres in three new wilderness areas (Mount Charleston, Mount Moriah, and Boundary Peak) and an addition to the existing Jarbidge Wilderness. The following day Representative Barbara F. Vucanovich introduced a companion bill (H.R. 1686) in the House. The stated purpose of these bills was to

> designate certain National Forest System lands in Nevada for inclusion in the National Wilderness Preservation System in order to preserve the wilderness character of the land and to protect watersheds and wildlife habitat, preserve scenic and historic resources, and promote scientific research, primitive recreation, solitude, physical and mental challenge, and inspiration for the benefit of all of the American people; and (2) insure that certain National Forest System

---

83. U.S. Department of the Interior, National Park Service, *Study of Alternatives, Great Basin, Snake Range/Spring Valley Study Area, Nevada*, February 1981, pp. 3-10, 47-59.

Snake Range/Spring Valley (811,600 acres), Railroad Valley (2,217,500 acres), Monitor/Big Smoky Valley (2,244,960 acres), and White Mountains/Fish Lake Valley (835,651 acres).

After inventorying the resources, the four study areas were evaluated, using as a basis the natural and cultural themes for the Great Basin contained in *Part One* and *Part Two of the National Park System Plan*. The survey team found that all four study areas contained a majority of the primary nineteen natural and five cultural themes. The Snake Range/Spring Valley and Monitor/Big Smoky Valley areas included all 24 themes, while Railroad Valley had 22 and White Mountains/Fish Lake Valley had 19. Several of the more important themes, however, were not represented in the latter two.

Since the analysis of the Great Basin primary themes resulted in three areas with similar representation, the study team designed a Study Area Evaluation Chart, consisting of nine additional topics ranked in order of descending importance. Because the Snake Range\Spring Valley unit included all 24 primary themes and ranked highest in eight of the nine additional topics, the survey team recommended that a study of alternatives be made of that area. Interest in further study of this area was enhanced when the federal government began studying the advisability of locating MX missiles in the Snake Valley.[81]

Comments from the Nevada Division of State Parks, Bureau of Land Management, U.S. Forest Service, and Heritage Conservation and Recreation Service were incorporated in the final reconnaissance survey document. The results of the survey and comments received from these agencies and the Land and Water Conservation Fund Policy Group substantiated the recommendation that a study of alternatives be made of the Snake Range/Spring Valley area. On December 7, 1979, a summary of the reconnaissance survey and recommendations was submitted to the House Committee on Interior and Insular Affairs.[82]

In December 1979 the National Park Service decided that the study of alternatives for the 811,600-acre Snake Range/Spring Valley area should be completed during 1980. The Park Service, in cooperation with the Land and Water Conservation Fund Policy Group, determined the project's scope and then requested the State of Nevada and concerned federal agencies for assistance in the project. An interagency team was formed. Led by the Park Service this team included the Nevada Division of State Parks, Forest Service, Bureau of Land Management, and Heritage Conservation and Recreation Service.

The purpose of the study was to determine the feasible alternatives for protection, use, and management of the area's resources and to assess the impacts and implications of each alternative. Thus, the document, entitled *Study of Alternatives, Great Basin, Snake Range/Spring Valley Study Area, Nevada*, would provide information to enable the Department of the Interior tc submit to Congress a recommendation as to whether or not the area should be included in the National Park System or if other means of management and protection should be pursued.

---

81. *Reconnaissance Survey*, January 1980, pp. 1-92. The themes considered of primary importance for the Great Basin, as well as the nine additional topics, may be seen in Appendix CC.

82. U.S. Congress, House, Committee on Interior and Insular Affairs, *Proposed Great Basin National Park, Nev., Submitted as an accompanying part of the Communication from The Secretary of the Interior Transmitting Reports on Studies of New Areas with Potential for Inclusion in the National Park System*, H. Doc. 96-12, 96th Cong., 1st Sess., 1979. The Land and Water Conservation Fund Policy Group had been established to serve in an advisory and interagency coordinating role with respect to the federal portion of the Land and Water Conservation Fund. Federal agencies represented in the group were the U.S. Fish and Wildlife Service, Bureau of Land Management, Heritage Conservation and Recreation Service, and National Park Service.

> lands in the State of Nevada be made available for uses other than wilderness in accordance with applicable national forest laws and planning procedures and the provisions of this Act.[84]

A far more extensive bill was introduced by Representative Harry M. Reid of Nevada on September 12, 1985. Reid would soon emerge as a spokesman for the state's conservation interests in his successful bid in 1986 to win the Senate seat held by Laxalt who was retiring. Reid's legislation (H.R. 3302) proposed nine new wilderness areas and an addition to the Jarbidge Wilderness, totaling some 722,900 acres of forest lands for inclusion in the National Wilderness Preservation System. The proposed areas included are Dome, Boundary Peak, East Humboldt, Mount Moriah, Mount Rose, Ruby Mountains, South Snake, Mount Charleston, and Table Mountain. The South Snake Wilderness would comprise some 120,000 acres.[85]

That same day Representatives John F. Seiberling of Ohio, Chairman of the House Subcommittee on Public Lands, George Darden of Georgia, Peter H. Kostmayer of Pennsylvania, and James Weaver of Oregon introduced H.R. 3304, calling for eighteen new wilderness areas and an addition to the existing Jarbidge Wilderness totaling 1,466,500 acres in Nevada. The eighteen areas were: Alta Toquima, Arc Dome, Boundary Peak, Currant Mountain, East Humboldts, Elk Mountain, Excelsior, Grant Range, Mount Moriah, Mount Rose, Quinn Canyon, Ruby Mountains, Santa Rosa, Schell Peaks, South Snake, Mount Charleston, Table Mountain, and Toiyabe Crest. The South Snake Wilderness was to consist of 120,000 acres.[86]

A hearing was held by the House Subcommittee on Public Lands on all three House bills in Washington, D.C., on October 10, 1985, with Representative Seiberling presiding. None of the bills had any references to establishment of Great Basin National Park, but during the hearing Representative Bruce F. Vento of Minnesota brought up the issue of national park designation in place of wilderness designation for the South Snake Range.

During the hearing Douglas W. MacCleery, Deputy Assistant Secretary of Agriculture, read a prepared statement outlining the position of his department on the three bills. Among other things, he observed that "current draft Forest Plans for the Toiyabe and Humboldt National Forests support wilderness status for some of the areas" covered by the bills. Included in the draft Forest Plan for Humboldt National Forest was the Wheeler Peak (South Snake) Wilderness to comprise 60,151 acres (a total later changed to 61,689). With reference to the South Snake proposal, he noted:

> The South Snake (Wheeler Peak) proposal is listed in H.R. 3302, H.R. 3304, and the draft Forest Plans. The two bills propose a much expanded area compared to the draft Forest Plans. We recommend that the proposal for this area be reduced in size to conform to the draft Forest Plan recommendations. We would be pleased to work with the Committee on any questions involving the final boundary locations.

---

84. H.R. 1686, in U.S. Congress, House, Committee on Interior and Insular Affairs, *Additions to the National Wilderness Preservation System, Hearing Before the Subcommittee on Public Lands of the Committee on Interior and Insular Affairs, House of Representatives, Ninety-Ninth Congress, First Session, on H.R. 1686, H.R. 3302, H.R. 3304, Nevada Wilderness Proposals, Hearing Held in Washington, D.C., October 10, 1985*, Serial No. 99-19, Part I (Washington, Government Printing Office, 1986), pp. 9-21.

85. H.R. 3302, in *ibid.*, pp. 22-31.

86. H.R. 3304, in *ibid.*, pp. 32-42.

Robert C. Horton, Director of the U.S. Bureau of Mines, also read a prepared statement at the hearing. Among his comments on the bills was a reference to the South Snake Wilderness proposal. He indicated "that tungsten, beryllium, precious metals, and base metals" occurred in the area as there was "recorded production of these commodities from six mining districts in and near the proposed wilderness." Thus, he opposed the wilderness designation.[87]

Three weeks after the hearing, on October 31, 1985, the Subcommittee on Public Lands adopted an amendment in the nature of a substitute to H.R. 3302, which was reported favorably to the House Committee on Interior and Insular Affairs by voice vote. The amendment, largely prepared by Representative Reid, became known as the Nevada Wilderness Protection Act of 1985. Among other things, the bill provided for designation of 939,000 acres of national forest lands in Nevada as additions to the National Wilderness Preservation System. The bill also provided for deletion of the South Snake Wilderness designation and establishment of a 174,000-acre Great Basin National Park, the lands for the park to be transferred from the Forest Service to the Park Service. In the proposed park valid existing rights under the mining and mineral leasing laws and the Geothermal Steam Act would be protected, grazing at levels permitted before July 1, 1985, would be permitted, and a visitor center would be constructed. Private lands would be acquired only with consent of the individual landowners.

The full House Committee on Interior and Insular Affairs considered H.R. 3302 on November 6 and approved the committee's amendment as written by Reid. On November 26, 1985, the Department of Agriculture submitted its report on the amended bill to Morris K. Udall, Chairman of the House Committee on Interior and Insular Affairs. Commenting on the section pertaining to the park, Secretary John R. Block stated:

> Although the Administration has not formulated a final position, we oppose the creation of a new National Park within the context of this wilderness designation package and recommend that Title II be deleted. We believe the creation of a new national park is a significant change in management direction for these Federal lands and should be subject to separate hearings and fact-finding inquiries. Current management direction as specified in the draft Humboldt National Forest Plan will continue to conserve and protect the area. Current and long-range management plans for the area not only protect the area, but are compatible with other multiple uses and resource demands.[88]

Notwithstanding the objections of the Department of Agriculture, the House Committee on Interior and Insular Affairs on December 10, 1985, reported favorably on H.R. 3302 subject to approval of the amendment in the nature of a substitute by the full House. The committee, however, was divided in its recommendation along party lines. The Republican minority opposed the favorable report of the Democratic majority. In very strong dissenting language the Republicans, led by Representative Don Young, the ranking minority member from Alaska, stated their opposition to the portion of the bill providing for establishment of Great Basin National Park:

> This wilderness bill is unique in that it also designates a new national park. While the proposal to designate the Wheeler Park area as the Great Basin

---

87. *Additions to the National Wilderness Preservation System, Hearing . . . October 10, 1985*, pp. 1-8, 89, 173-82.

88. U.S. Congress, House, Committee on Interior and Insular Affairs, *Designating Certain National Forest Lands in the State of Nevada for Inclusion in the National Wilderness Preservation System, And for Other Purposes*, H. Rept. 99-427, Part I, 99th Cong., 1st Sess., 1985, pp. 17-25.

National Park may well be appropriate, it deserves separate and thorough consideration to answer the numerous remaining questions. It is not every day that we create a national park, and we strongly feel that it should not be done in a hasty manner nor through inclusion in a wilderness bill.

Furthermore, the only hearing held on the proposal within the last twenty years occurred after the bill was reported from the Full Committee. To hold a hearing on such an important issue after the fact is a perversion of the legislative process. It is as if the hearing were held only to rubber stamp the Committee's previous actions. Interestingly enough, the hearing emphasized the fact that there is no consensus for a Great Basin National Park in Nevada and that many significant issues remain unresolved.

This area is currently being wisely managed for multiple uses, including recreation, mining, grazing and hunting, as well as protection of the resources. Creating a national park would upset this present balance of uses and protection which has existed for decades. Such a drastic change in management should proceed slowly and only after thorough consideration.[89]

In April 1986 Nevada's three Republicans in Congress (Senators Laxalt and Hecht and Representative Vucanovich) introduced a bill to designate only 137,000 acres of national forest land in Nevada as wilderness. They did agree, however, to support a greatly scaled-down 44,000-acre Great Basin National Park. In the Senate Laxalt and Hecht determined to have the wilderness and park issues treated separately with individual bills. The introduction of the 137,000-acre wilderness bill shifted the focus back to the House, where the Reid wilderness bill, including the proposed park, would come up for a vote in several weeks.[90]

Before H.R. 3302 (the amended version in the nature of a substitute as proposed by the House Committee of Interior and Insular Affairs) reached the House floor, Representative Reid introduced H.R. 4642, a compromise bill designed to gain both Republican and Democratic support in both houses of Congress. This bill provided for designation of eleven wilderness areas in Nevada totaling 592,000 acres and establishment of a Great Basin National Park and Preserve. The park was to comprise 129,000 acres, while the preserve would consist of 45,000 acres in the southern portion of the Snake Range where hunting would be permitted. Provisions in the bill included $1,000,000 for a visitor center, park development, and acquisition of private land within the park's boundary. The bill also provided for release of 2,500,000 acres "of national forest lands for other uses according to the standard release language included in other wilderness legislation" passed by Congress.

The committee's version of H.R. 3302 and H.R. 4642 were debated extensively on the House floor on April 30. During the debate Reid defended H.R. 4642 by noting:

Like the committee bill, my substitute amendment deletes wilderness designation for the South Snake Range in White Pine County and instead creates the "Great Basin National Park and Preserve."

---

89. *Ibid.*, pp. 26-27.

90. *Las Vegas Review Journal*, April 16, 1986.

The 200,000-square-mile area known as the Great Basin is not represented in the National Park System. The need for this park not only continues but is greater than it has ever been.

In addition to preserving the physical attributes of the landscape, a park would help boost and diversify the economy of White Pine County and the rest of the State of Nevada. Finally, the establishment of the only national park in Nevada is more than a desert wasteland where atomic tests are conducted. There are unique and beautiful places in the State that we are anxious to preserve, protect, and enjoy.

Mr. Chairman, my substitute amendment recognizes the need to grant the Snake Range special status and still allow the use of the land by those who depend upon it. Therefore, grazing in the park/preserve may continue at historic levels permitted before July 1, 1985.

This area also supports a good variety of wildlife including mule deer, mountain lion, a newly established population of Rocky Mountain bighorn sheep, blue grouse, cottontail rabbit, several furbearing animal species and a large variety of nongame wildlife species. The area's small streams and two small alpine lakes support a variety of trout species. Approximately 500 hunters harvest about 170 deer annually.

My amendment designates a 45,000-acre park preserve in the southern portion of the South Snake Range to allow hunting and fishing to continue in the popular area to continue.

If the area is designated wilderness, the area will remain open for nonmotorized recreational use. Grazing can also continue, as well as mining on patented or valid claims.

Many also believe that by designating wilderness, we are destroying one of Nevada's major industries – the mining industry. The dean of the Mackay School of Mines at the University of Nevada at Reno, estimates that the total production value of Nevada minerals by 1990 will average $2 billion per year. As the son of a hardrock miner, I am well aware of the contribution of this necessary and dynamic industry to Nevada and the Nation.

As of April 1 of this year, there were 385,045 mining claims in Nevada. In the areas I have proposed for wilderness designation, there are 334 mining claims – representing one-tenth of 1 percent of the total.

Within the Great Basin National Park and Preserve there are 346 mining claims totaling 7,145 acres: 4.1 percent of the entire park and preserve.

H.R. 4642 also restates the provisions of the Wilderness Act of 1964, emphasizing the neutrality of the act on the applicability of State water laws. The creation of "buffer zones" around wilderness areas is expressly prohibited under H.R. 4642.

Nevadans are very independent and fiercely protective of these lands. The public is denied access to a large portion of that land, totaling more than 3.5 million acres, which has been reserved primarily for military bases, bombing and gunnery ranges, and nuclear testing activities. My moderate proposal to set

aside 592,000 acres of wilderness and 174,000 acres for the Great Basin National Park for the future is a wise and prudent step.

Mr. Chairman, I can tell you also that the vast majority of Nevadans are in favor of preserving these special wild lands for future generations. A recent statewide telephone survey of 2000 randomly selected Nevadans from every county and virtually every community in the State indicates that 74 percent favor setting aside wilderness areas, and 84 percent favor the establishment of the Great Basin National Park.

Another important factor must be considered. These lands are currently in "administrative limbo." By adopting my substitute, 2.5 million acres – or 3 out of every 4 acres – of potential national forest wilderness lands in Nevada are released for development and other uses.

The Reid bill was supported by numerous organizations, newspapers, and politicians in the State of Nevada, including the National Wildlife Federation, Sierra Club, Wilderness Society, National Audubon Society, Governor Richard Bryan, *Reno Gazette-Journal, Las Vegas Review-Journal, Las Vegas Sun, Carson City Appeal*, and League of Women Voters.

During the lengthy debate Representative Vucanovich offered an amendment deleting the entire section of H.R. 4642 relating to the park and preserve. Representing the views of Free Enterprise Associates, an Ely-based group of mining, ranching, and hunting interests that was fighting reduction in the existing multiple-use management of the Snake Range by the Forest Service, she stated that the bill placed "debilitating restrictions on Nevadans" who were "tied to the multiple use of the land." The bill, moreover, would deny access for hunting and fishing and have a "crippling" effect on mining and the state's economy. While she did not oppose a national park, Vucanovich wanted a separate piece of legislation for its establishment.

The Reid bill was defeated in the House by a vote of 151-247 on April 30. Then the House substituted language in H.R. 4642 for language in H.R. 3302 and passed the revised 3302 bill and sent it to the Senate.[91]

On May 21, 1986, Senators Laxalt and Hecht introduced S. 2506 providing for a scaled-down 44,000-acre Great Basin National Park. The bill was designed to protect the mining and ranching interests in the area. Under this bill mining and grazing would be continued in the park area and the federal government was denied any implied water rights. At the same time the two Senators refused to have changes made to their earlier bill providing for only 137,000 acres of wilderness.[92]

During the next several months the debate over the Reid and Laxalt-Hecht bills intensified. In mid-June Secretary of the Interior Donald Hodel announced his opposition to the Reid bill. The department, according to Hodel, could not "afford another park on its current budget, adding that a more thorough analysis of the proposal's implications" was needed. He warned that national parks do not become tourist attractions without adequate facilities

---

91. *Congressional Record* – House, April 30, 1986, 99th Cong., 2d Sess., Vol. 132, No. 56, H 2251-2273.

92. *Ely Daily Times*, May 22, 1986, and U.S. Congress, Senate, Committee on Energy and Natural Resources, *Establishing the Great Basin National Park and Miscellaneous Boundary Adjustments in the National Park System, Hearing Before the Subcommittee on Public Lands, Reserved Water and Resource Conservation of the Committee on Energy and Natural Resources, United States Senate, Ninety-Ninth Congress, Second Session, On . . . S. 2506, A Bill to Establish a Great Basin National Park in the State of Nevada, and for other purposes . . . July 18, 1986* (Washington, Government Printing Office, 1987), pp. 5-9.

such as roads, campgrounds, and restrooms. Hodel observed that there were no funds to provide such facilities and adequate staffing and land acquisition. Thus, the new park would become "a drain on the national park budget."[93]

Representative Reid sharply criticized Hodel, arguing that the secretary's position reflected "the arrogant view of administration bureaucrats that Nevada is nothing more than a federal colony." He stated that the attitude of the administration appeared "to be that Nevada is good enough for a nuclear dump and for bombing ranges but we're not good enough for a National Park."[94]

The Subcommittee on Public Lands, Reserved Water and Resource Conservation of the Senate Committee on Energy and Natural Resources held a hearing on S. 2506 on July 18, 1986.[95] In a prepared statement, Senator Hecht, who presided at the hearing, observed:

> The Great Basin is one of the few major geographic and geologic regions in our country that is not yet represented in the National Park System. Lawmakers and the conservation community have been aware of this oversight since 1924, when Senator Key Pittman of Nevada introduced the first national park bill for the area.
>
> The area to become a national park through S. 2506 has already been recognized by the Federal Government as having much to commend it for preservation in the national interest.
>
> The bill which Senator Laxalt and I introduced contains all the key natural features which should be included in a Great Basin National Park. It also reduces potential conflicts with the traditional industries of White Pine County, ranching and mining. For instance, while the House bill contains 828 valid unpatented mining claims, the Senate bill only contains an estimated 200 such claims. The House bill says grazing may continue in the park. The Senate bill says it shall continue as before, and allows a rancher to try to exchange grazing allotments inside the park for any that might become available outside the park.
>
> To minimize the costs to the taxpayers of creating a new park, I have deliberately excluded all private inholdings from the park boundaries. The Senate park proposal would therefore require little or no money for land acquisition. In contrast, the House bill puts valuable private lands into that park.
>
> Some of the visitor facilities needed for a park already exist. There is therefore little need to spend a lot of money on park development. I believe this area of Nevada is a truly beautiful example of the mountain ranges which typify the Great Basin, and will make a great contribution to our country's National Park System.

Senator Laxalt submitted a prepared statement that was incorporated into the hearing document. In his comments Laxalt stressed the need for a smaller park than provided by the Reid bill to protect traditional mining and ranching interests:

---

93. *Ely Daily Times*, June 13, 1986.

94. *Reno Gazette Journal*, June 14, 1986.

95. Earlier on February 10-14, 1986, the subcommittee held a series of hearings on S. 722 in Ely, Elko, Winnemucca, Las Vegas, and Reno.

This area of the State has been important to Nevada and the nation for its mineral wealth and production of food and fiber for many years. It is important that those industries not be compromised by the Park addition and I believe that goal is possible. Our Park proposal has been carefully crafted to permit the continued viability of those industries side by side with the Park, continuing the policy of multiple use of our varied resources. Our proposed 44,000 acre Park includes all the important features of the range and permits their interpretive showcasing while avoiding undue disruption of traditional mining and livestock activities. Such activities are, after all, of historical worth, as well as of economic benefit, and are as worthy of preservation in their own right as are scenic features of the proposed Park. I want to make clear that it is my intention, as a cosponsor of this Park legislation, to protect and preserve traditional mining and grazing activities within the remaining forest unit. There is simply no reason to restrict such activities outside the Park boundaries.

In that respect our bill differs from the park proposal already passed this year by the House of Representatives. That measure includes much more area with a resulting increased impact on historic economic activities. Moreover that bill converts the whole South Snake forest unit to Park Service management, a move I oppose. The Forest Service has well served the unit in the past and should, I believe, continue to manage the unit, the bulk of which will remain forest under our proposal. I do hope, Mr. Chairman, that we may convince our House colleagues of the strengths of the Park, as proposed in S. 2506.

I want to stress again that my support for the Park is based on the merits of the characteristics of the area. It is truly a magnificent representative of a vast area of our nation called the Great Basin and should be developed as a showcase and interpretive center for all our citizens. It is more than just a pretty place, although it certainly qualifies as a pretty place. To the extent it may bring some economic stimulus to White Pine County in Nevada, I will applaud that result as it is sorely needed there.

Secretary Hodel appeared at the hearing to support the bill.[98] His personal statement included the following comments and observations:

I would like to personally commend the two Senators from Nevada for preparing a balanced proposal, one that provides for protection of the natural resources that make up the Great Basin region while at the same time is sensitive to the needs of the people who have traditionally used the area. Your proposed boundary has been carefully drawn to include spectacular resources while excluding patented mining claims and the wintering range of the mule deer. This should help reduce the cost of this national park, and makes it acceptable to this Administration, unlike other proposals put forward which we could not support.

Further, I would note that this park, upon enactment of S. 2506, could begin operation immediately. Existing funding, personnel, and facilities at Lehman Caves National Monument are already located within the proposed park boundary, and can form the nucleus of services for the new park. Immediately available to the park visitors, therefore, would be an existing visitor center and office building complex, a small gift shop and coffee shop, a cave trail, a 30-

96. Hodel's sudden change of heart on the park issue has been credited to Laxalt's lobbying of the administration and his long-time friend President Ronald W. Reagan.

site picnic area, rest room facilities, and a water system. Further, as a result of the transfer of land from the Forest Service, there would also be available to visitors two primitive campgrounds, a trailer campground with 11 developed sites, three other campgrounds with a total of 81 developed sites, and rest room facilities. With this infrastructure in place, plus the fact that the area proposed by S. 2506 is already Federally-managed, we believe that the new national park can be established without significant increased cost to the taxpayer.

Hodel also addressed three other issues in his testimony. These were the authorization for further development, the authorization for land acquisition, and grazing. He observed:

> As I mentioned, this park already contains limited visitor facilities. Uses in the area of the new park should, therefore, remain essentially the same as now. We would nevertheless propose to prepare a general management plan, which includes public involvement, to help guide the future management of this national park and to identify any desired or needed future facilities. The close working relationship between the staff of this new national park and the adjacent communities will certainly be vital to a successful operation. It is important to me that we be candid in advising you, the Congress, and the communities, however, that it is unlikely that the National Park Service will be in a position to fund additional facilities for the foreseeable future. Support for this new park should be founded on the propriety and suitability of this area as a park and not on the basis of unredeemable promises of increased tourism and facilities.
>
> With regard to land acquisition, it is my understanding that there is no private ownership of the surface estate inside of the proposed boundary. There may be valid mining claims, however, which constitute an interest in land. I believe we should proceed with the development of a land protection plan that will identify all valid interests in these lands. The land protection planning process, of course, will also involve the public. We will seek a consensus regarding the appropriate level of protection, and what, if any, interests in lands must be acquired.
>
> With regard to the issue of grazing, Mr. Chairman, I understand there are a total of seven different grazing allotments within the entire 174,000-acre South Snake Range Unit of the Humboldt National Forest. Within all seven allotments, there are six cattle permits totaling 571 head of cattle, or 2,583 animal unit months (AUM's), and there are two sheep permits totaling 2,437 sheep, or 1,843 AUM's. Portions of six of these allotments are within the 44,000-acre proposed park boundary.

The Department of Agriculture was represented at the hearing by George S. Dunlop, Assistant Secretary for Natural Resources and Environment. He voiced the continuing reservations of his department toward any national park proposal but conceded that if a park were established the Laxalt-Hecht bill was preferable. Among other things, Dunlop stated:

> Our reservations about the bill, S. 2506, stem from our longstanding commitment to the concept of balanced multiple use of our natural resources. There is no doubt that the area encompassed by S. 2506 has many outstanding scenic and natural features, and there is no question that these features should be managed to protect and enhance those values. It is simply our earnest opinion that the current management under the Forest Service provides for such protection.

Our concern is that passage of S. 2506 could reduce or foreclose management of the area for a number of other multiple uses currently being carried out in ways that do not detract from protecting and enhancing the natural and scenic value of the area. Examples, and they have been mentioned by previous witnesses, are hunting, livestock grazing, fuel-wood gathering, and similar activities.

I might say that we are also concerned that when an area is designated as a national park, as Secretary Hodel indicated, there does develop from many quarters sentiment to increase the size of the park, or to place other use restrictions on adjacent land. We would strongly oppose any such expansion.

With regard to the park proposal, I should say that we feel there are other management options which would be available which would protect the scenic values of the area and allow increased recreational use and retain the existing multiple use opportunities that I have identified. An example would be the designation of the area as a national recreation area administered by the Forest Service.

This could provide for national recognition and visibility to the scenic and recreational attributes of the area without the limitations on multiple use that would be associated with park status. For example, hunting would be permitted in a national recreation area. Grazing and mineral activities could be permitted if such specific activities were consistent with and did not detract from the primary purposes for which the recreation area was established.

Perhaps of most immediate concern to the folks that are living and working out there now is that there are 1065 animal-use-months of livestock grazing within the proposed park area. The bill allows grazing to continue subject to certain limitations and conditions or regulations as may be prescribed by the Secretary of the Interior.

As currently written the bill provides that the Secretary of Agriculture would negotiate an exchange with holders of valid existing grazing permits on land within the proposed park for an equal number of animal-unit-months on land elsewhere within the Humboldt National Forest.

Mr. Chairman, very frankly this provision that is in the bill is not practical, simply because grazing capacity on the South Snake Division is completely and fully obligated. There is little opportunity for range improvement that could increase the livestock carrying capacity outside of the proposed boundaries.

So for this reason it is our very earnest recommendation that the issue of grazing allotments be specifically provided for in the statute, and we hope that the committee could do that. We would be very pleased to work with you to help bring that about.[97]

The endorsement of the Laxalt-Hecht bill by Secretary Hodel was warmly applauded by various regional newspapers. The *Deseret News*, for instance, printed an editorial on August 9, 1986, stating:

---

97. *Establishing the Great Basin National Park and Miscellaneous Boundary Adjustments in the National Park System, Hearing, July 18, 1986,* pp. 1-2, 14-15, 20-30.

> Because of the persistently stubborn federal deficit, the Reagan administration has been notably reluctant to expand the National Park System.
>
> So it's encouraging to see that this reluctance has been overcome to a limited extent with Interior Secretary Donald Hodel's endorsement of a bill to create a Great Basin National Park in eastern Nevada.
>
> This breakthrough is welcome for more reasons than just the fact that the bill would create a national park in the only western state without any such parks.
>
> More important, a new national park could help take some of the pressure off other national parks, which are in danger of being loved to death. Since 1950, visits to America's national parks have increased from 33 million a year to more than 327 million. As a result of this pressure and budget restrictions, roads, campgrounds, and other facilities in the parks have been deteriorating.
>
> But then national parks don't automatically attract visitors. For that to happen, new parks require new campgrounds and continuing upkeep. So the less ambitious Laxalt-Hecht bill, with its more limited expenditures, should be easier to sell to the Senate than the House bill. Moreover, it provides a base point for negotiations in a congressional conference committee to resolve differences between the House and Senate measures. If a small park is created now, it could be expanded later when circumstances are more favorable.[98]

After consideration of S. 2506 the Senate Committee on Energy and Natural Resources recommended passage of the bill on September 19, subject to an amendment in the nature of a substitute. The amendment added a standard provision on the legal description of the park and abolished Lehman Caves National Monument, its lands to be incorporated in the proposed park. Available monument funds would be transferred to the park. The substitute provided that establishment of the park did not create any new reservation of water or water rights and clarified that whatever water rights the United States had on the proposed park lands prior to establishment of the park would be retained and that any appropriation of water would be made under Nevada state law. The amendment authorized the Secretary of the Interior to enter into cooperative agreements with other groups and agencies to provide for the interpretation of the Great Basin physiographic region. Finally, the authorization for appropriation was modified to authorize $800,000 for development and $200,000 for land acquisition.[99]

On September 30, 1986, S. 2506, as amended by the committee, was considered on the Senate floor. The bill passed with little debate and only some minor discussion on its grazing provisions.[100]

Thus, there were two park bills that had been passed by the two houses in Congress. The Reid bill provided for a 129,000-acre park and 45,000-acre preserve, and the Laxalt-Hecht bill provided for a 44,000-acre park.

---

98. *Deseret News*, August 9, 1986. Similar sentiments were expressed in a *Los Angeles Times* editorial on August 5, 1986.

99. U.S. Congress, Senate, Committee on Energy and Natural Resources, *Establishing the Great Basin National Park in the State of Nevada*, S. Rept. 99-458, 99th Cong. 2d Sess. 1986.

100. *Congressional Record* – Senate, September 30, 1986, 99th Cong., 2d Sess., Vol. 132, No. 132, S 14344-14345, and *Congressional Record* – Senate, October 1, 1986, 99th Cong., 2d Sess., Vol. 132, No. 133, S 14384.

When S. 2506 was sent to the House Representative Bruce F. Vento, Chairman of the House Subcommittee on National Parks, undertook to negotiate a compromise on the size of the park. In discussions with Representatives Reid and Vucanovich, it was agreed that the proposed park should comprise approximately 76,000 acres. Thus, S. 2506, as amended, reached the House floor on October 6. In presenting this compromise to the House, Vento noted:

> Mr. Speaker, the House passed H.R. 3302 on April 30, 1986, which contained a designation of a 174,000 acre Great Basin National Park and Preserve. The boundary of this park was drawn to incorporate 16 to 25 of the primary features found throughout the Great Basin region.
>
> Any proposal for a national park should be considered within the context of features that are a sufficient quality to be included within a national park. The elimination of such features from the park area reduce its viability as a national park in direct relation to the number of features being eliminated. I believe the original House proposal to have been an excellent one, properly incorporating the features of the great basin physiographic region and establishing boundaries that were both manageable and so drawn to include only a minimum of private land. Out of 174,000 acres all the land is federally owned except 915 acres.
>
> However, the other body chose to send us a new bill, S. 2506. S. 2506 calls for a 44,000-acre national park which in my view reduced the number and quality of features within the boundary to the extent that national park designation would no longer have been possible.
>
> I have been working with Congresswoman Vucanovich and Congressman Reid in an attempt to achieve some reasonable compromise on a boundary for the Great Basin National Park, and I'm pleased to report to this House and Members that I believe we have now achieved the goal of agreeing on a smaller park that, while not ideal, reflects most of the features that are integral to the Great Basin area.
>
> The proposed Great Basin National Park would include about 76,000 acres of Forest Service administered land in the Humboldt National Forest known as the South Snake Range and would incorporate Lehman Caves National Monument, located on Wheeler Peak in the South Snake Range.
>
> I would prefer to designate a larger Great Basin National Park. However, 60 years is far too long for us to debate the merits of this important addition to the National Park System and I am pleased that we have been able to agree to a compromise that will finally allow for the establishment of a national park that the people of Nevada and the Nation can take pride in.

The House passed S. 2506, as amended, and sent the revised bill to the Senate.[101]

The amended S. 2506 providing for a 76,000-acre park reached the Senate floor on October 9. There Senator Hecht remarked on the bill:

---

101. *Congressional Record* – House; October 6, 1986, 99th Cong., 2d Sess., Vol. 132, No. 136, H 9189-H 9193. Vento placed extended remarks on the water rights issue in the *Congressional Record* on October 17. *Congressional Record* – Extensions of Remarks, October 17, 1986, 99th Cong., 2d Sess., Vol. 132, No. 144, E 3771-E 3772.

When the Senate passed S. 2506 a few weeks ago, I was confident that we had done an excellent job designing a park that took in the most impressive features of the Snake Range, while still protecting the mainstays of the local economy: mining and ranching. Another very important provision in the Senate-passed bill involved language protecting water rights in Nevada. Finally, the boundaries of the bill excluded private land from the 44,000-acre park. Everyone who has a national park in their State understands the complex, chronic, and emotionally charged problems that almost always occur when private land is put inside a national park.

One of the main reasons I introduced a modest 44,000-acre bill was simply because I expected the Senate would have to give some ground on the grazing issue, and a bill affecting a small number of acres would also limit any damage that would result from the House weakening our Senate language on grazing.

I was pleased to see that the House's only change to the Senate bill was in the acreage involved. I was only presently surprised to see that even with the larger acreage, the House was willing to keep private land outside of the park, and accept the Senate language with regard to water rights and grazing.

With the Senate language left intact, I feel comfortable agreeing to the House amendment to my bill, which expands the Senate bill to 76,800 acres.

Mr. President, this legislation will add a new crown jewel to our Nation's National Park System. It will give Nevada its first national park. It will protect forever a beautiful piece of our Nation, and it will also protect the rights and way of life of the good citizens of White Pine County, NV.

Without further discussion or debate the Senate concurred in the House amendments.[102]

The act establishing Great Basin National park was signed into law by President Ronald W. Reagan on October 27, 1986. The purpose of the park, according to Section 2 of the act, was "to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values." Thus, the park, consisting of approximately 76,000 acres (detailed mapping and review of the land included within the boundaries which were part of the final bill showed that the actual acreage was 76,469.15), became the nation's 49th national park and the first such area outside of Alaska to be added to the National Park System in fifteen years.[103]

Announcement of the establishment of Great Basin National Park was greeted with a variety of opinions. Nevada Governor Richard Bryan hailed the park, saying it "sends a powerful message that Nevada is not just a wasteland or a dump site" but instead has areas "that are very beautiful and should be preserved and enjoyed." While he didn't think the park would generate the volume of tourists of Yosemite or Yellowstone, there would "be more traffic and the state will benefit enormously just from the association – just from being part of the national park system." He predicted that the park would be a boon to the eastern Nevada economy.

---

102. *Congressional Record* – Senate, October 9, 1986, 99th Cong., 2d Sess., Vol. 132, No. 139, S 15801-15802.

103. Public Law 99-565 (100 Stat. 3181). A copy of the act may be seen in Appendix DD. For an analysis of the political considerations that contributed to the final compromise legislation, see Oulman, "Copper, Cows, and Crown Jewels," pp. 110-27.

Representative Reid issued a statement noting that the park would be "a giant step forward in unraveling the false image held by some that Nevada is little more than an arid wasteland." Besides "diversifying our economy, the park will stand as a monument to Nevada's scenic heritage."

Ferrel Hansen, executive vice president of the White Pine County Chamber of Commerce, was "ecstatic" over the park's establishment. According to Hansen, it would help the county economy that had been depressed since Kennecott closed a major copper mining operation at Ruth during the late 1970s. While the park's impact would not be felt right away, it would make the county "a destination tourist area rather than a pass-through area" in several years.

Other opinions were less sanguine. Speaking for herself and Senators Laxalt and Hecht, Representative Vucanovich said the park's final size was "a compromise everyone can live with." Some miners and ranchers near the park worried that the park would interfere with their livelihoods. Residents of Baker were concerned that a major influx of tourists might disrupt their lifestyle.[104]

During the past two years Great Basin National Park has received increasing attention from newspapers and periodicals across the nation. One of the most profound descriptions of the park and the impact of its resources was printed in the November 1987 issue of the *Smithsonian:*

> If Yellowstone and Yosemite are diamonds in the nation's diadem of parks, Great Basin Park is perhaps more like a piece of turquoise. With the exception of Lehman Caves, a cavern whose intricate and beautiful decorations qualify it as a natural marvel by any standard, the park does not so much overpower a visitor, the way the Grand Canyon does, as creep up on him. The bristlecones, the deceptively high peaks (topped by 13,063-foot Wheeler Peak, Nevada's second highest), the steep-walled glacial lakes and narrow canyons command an appreciation that only gradually – but steadily – shades into awe.
>
> The park's appeal has to do with silence and space, with the grand lonesome sweep of the country itself, with long vistas and clear air and sudden winds that roar like a locomotive and secret meadows jammed with wildflowers.[105]

---

104. *Las Vegas Review Journal*, October 29, 1986.

105. Donald Dale Jackson, "The Great Basin Is a Lonely Place for a National Park," *Smithsonian*, XVIII (November 1987), 73-74.

CHAPTER THIRTEEN
DESCRIPTION AND RECOMMENDATIONS FOR MANAGEMENT AND INTERPRETATION OF HISTORIC SITES

INTRODUCTION

There are 26 extant historic sites within Great Basin National Park. After surveying, examining, and photographing the 26 sites, it was determined by the author of this study that all but five did not meet the necessary standards of significance and integrity for listing on the National Register of Historic Places. This evaluation was based on the National Register standards as outlined in the Advisory Council on Historic Preservation's procedures in 36 CFR 800. Three sites, the Lehman Orchard, Lehman Aqueduct, and Rhodes Cabin were entered on the National Register in 1975. This study recommends that the Osceola (East) Ditch be placed on the National Register. Since the Stella Lake Rock Dam was constructed as part of the ditch system, it is recommended that the rock dam be nominated to the National Register as a contributing resource on the ditch nomination form.

With several exceptions that will be noted in this chapter, most of the other 21 historic sites are recommended for "natural deterioration," meaning that no effort would be made to maintain them. The effects of natural deterioration should be carefully assessed, and all reasonable measures should be taken to minimize danger to park visitors and avoid adverse effects to the sites. It is also recommended that "clean up" operations be conducted at several sites. Before any sites are allowed to deteriorate or clean up operations are commenced, however, a National Park Service archeologist and the curator in the Western Regional Office should inspect and evaluate their "potential to yield scientific data" for significance under Criterion D of the National Register. For further information on the historic archeological significance of some of these sites, one should consult the draft Archeological Survey and Site Assessment at Great Basin National Park, prepared by Susan J. Wells of the Western Archeological and Conservation Center in 1989.

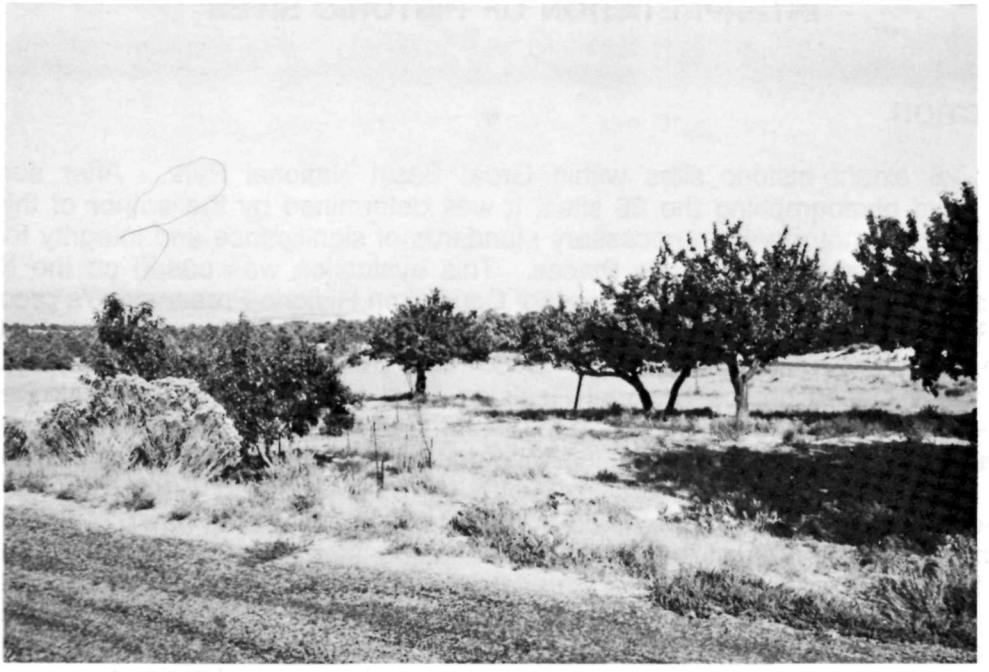
A separate section of this chapter concerns four mines/mining-related sites outside but near the park boundaries. The mines (Hub, Mount Wheeler, St. Lawrence) are the most significant mines in the vicinity of the park in terms of their historic production and extant remains as well as the historical documentation available on their discovery, development, and operation.

To date approximately 2 percent of the park has been surveyed systematically to professional standards for cultural resources. Thus, a comprehensive parkwide inventory and survey of cultural resources is needed to identify such sites and evaluate their contextual significance and interpretive value.

HISTORIC SITES WITHIN PARK

Lehman Orchard (1)

The Lehman Orchard, located just below the lower parking lot at the Great Basin National Park Visitor Center, was entered on the National Register of Historic Places in 1975. Begun during the 1880s by Absalom S. Lehman, the discoverer and early developer of Lehman Caves, the orchard is significant because it is representative of early agricultural and horticultural development in Snake Valley and has historic association with Lehman. The historic orchard, which included some 40 trees and covered more than 7 acres by the early 1930s, presently consists of seven apricot trees and one peach tree.





Views of Lehman Orchard



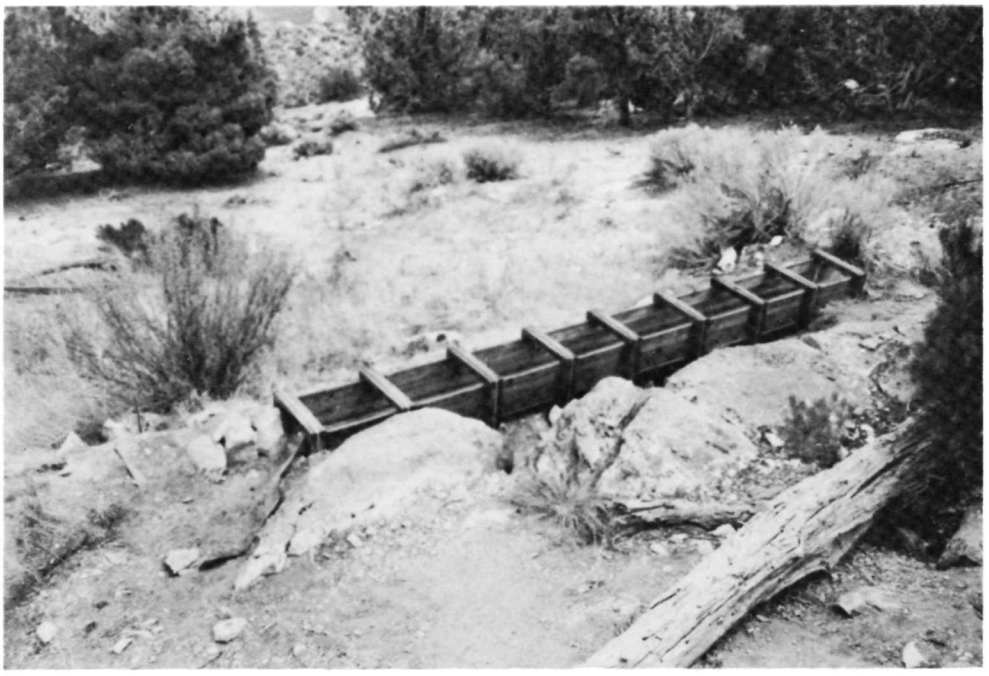


Views of Lehman Orchard

It is recommended that the orchard be preserved and interpreted in compliance with the 1986 *Orchard Management Plan* prepared by park personnel.

Lehman Aqueduct (2)

The Lehman Aqueduct was entered on the National Register of Historic Places in 1975. Constructed by Lehman during the 1880s the original aqueduct was an irrigation ditch and flume that extended southeast some two miles from Lehman Creek near the present Lower Lehman Campground to the Lehman Orchard. The aqueduct is significant because it is representative of early agricultural irrigation efforts in Snake Valley and has historic association with Lehman. Portions of the aqueduct have been reconstructed, given other preservation/stabilization treatment, and interpreted, while some parts of the resource have been obliterated (lower end in parking lot area) by recent Park Service development projects. Approximately three-fourths of the original aqueduct is still visible. It is *recommended that such stabilization/preservation and interpretation activities be continued* but that no further reconstruction or restoration be undertaken.



Reconstructed Lehman Aqueduct Flume



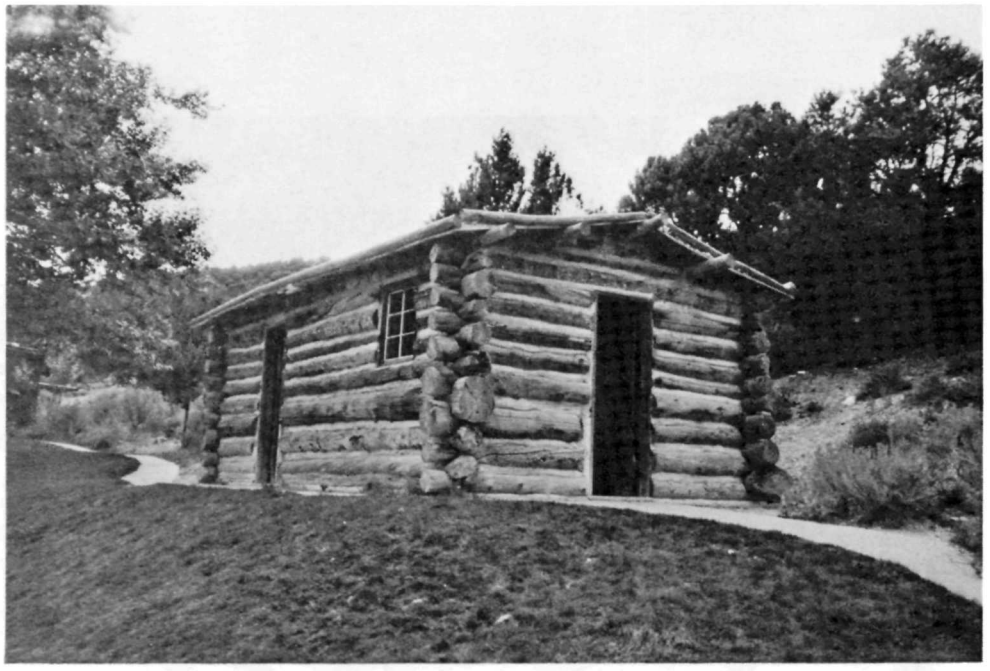
Remnant Portions of Lehman Aqueduct Ditch



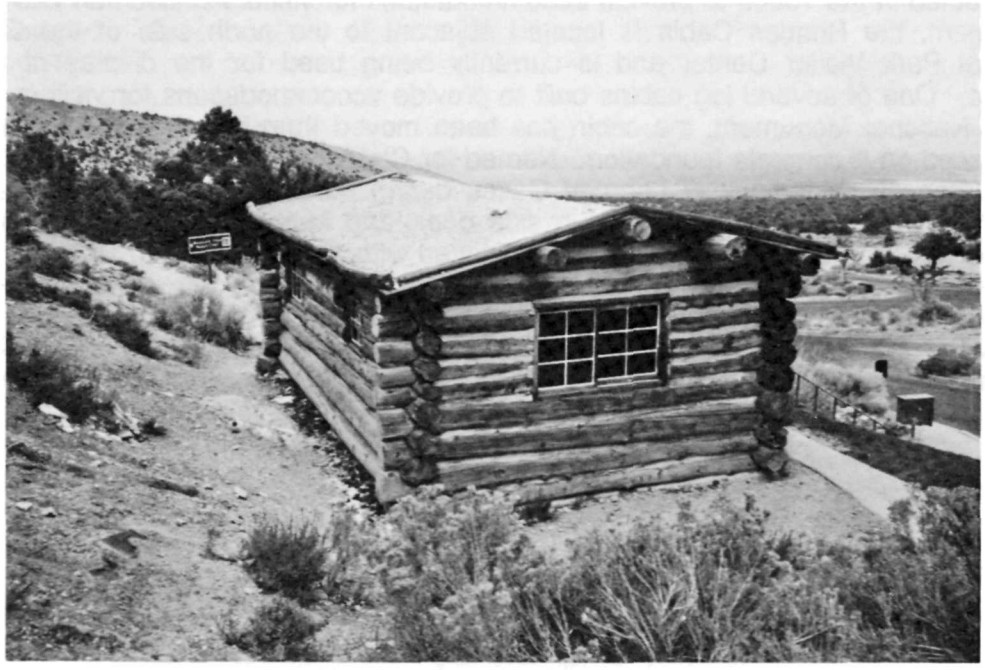
Remnant Portions of Lehman Aqueduct Ditch

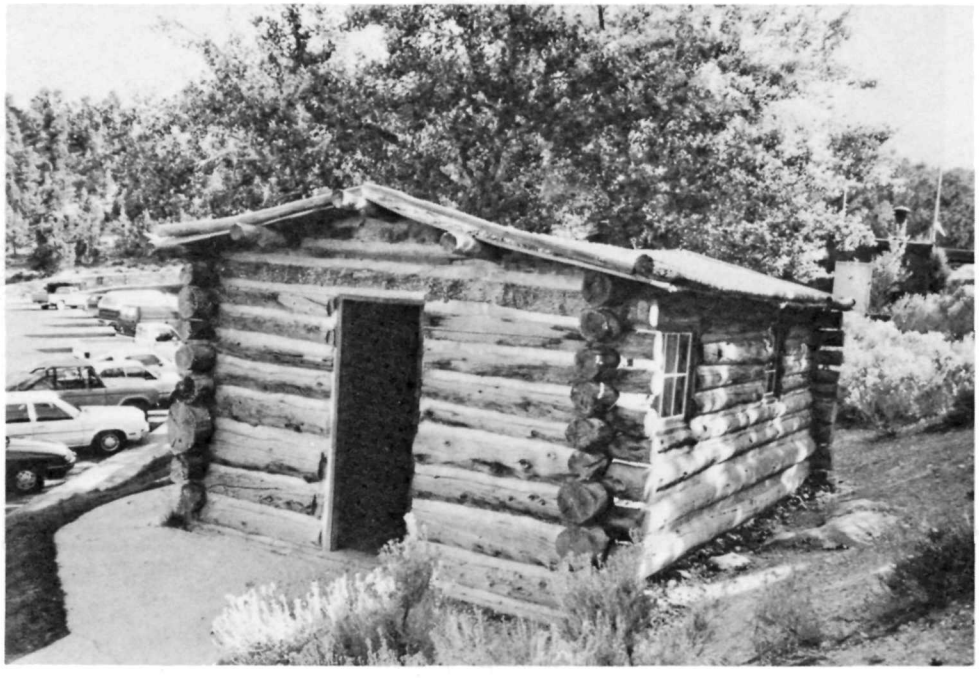
Rhodes Cabin (3)

Constructed in the 1920s to provide accommodations for visitors to Lehman Caves National Monument, the Rhodes Cabin is located adjacent to the north side of the Great Basin National Park Visitor Center and is currently being used for the display of interpretive exhibits. One of several log cabins built to provide accommodations for visitors to Lehman Caves National Monument, the cabin has been moved from its original location, restored, and placed on a concrete foundation. Named for Clarence and Beatrice Rhodes, who were Forest Service custodians of Lehman Caves during the 1920s, the cabin is 19 feet long and 11 feet wide with a front door, a side door, and four windows. The logs, originally chinked with mud and concrete, are now chinked with cement made to simulate mud. The original roof was plank and sod supported by log beams, and the original floor was dirt. Although its integrity has been compromised, the cabin was placed on the National Register of Historic Places in 1975 because of its association with the early tourist industry at Lehman Caves. It is recommended that appropriate preservation treatment be given the cabin on a continuing basis and that the structure continue to house interpretive exhibits.



Rhodes Cabin





Rhodes Cabin

Wheeler Peak Triangulation Station (4)

The Wheeler Peak triangulation station site on the mountain summit consists of several remnant rock foundations for the original U.S. Coast and Geodetic Survey structures built during the late 1870s and early 1880s. The station was used to make observations during the 2,500-mile geodetic arc of triangulation between the Atlantic and Pacific coasts along the 39th parallel of latitude, the first large land-scale trigonometrical survey of the nation. The outline of a large rock structure at the summit of Wheeler Peak measures approximately 26-1/4 feet by 16-1/2 feet. Two to four courses of stone remain along the east and north sides of the original structure, leaving a rectangular platform. In addition, there are two small rectangular stone foundations approximately 3-1/4 feet high that may have been used for the station operations. Stone from the large structure apparently has been borrowed to build two round hiker's shelters. Two tall cairns and two benchmarks of the U.S. Coast and Geodetic Survey are also located on the summit. Because the site's integrity has been compromised and a better example of such a station is located at Cedar Spur in White Pine County, it was determined that this site lacks sufficient significance and integrity to be placed on the National Register. The site is recommended for natural deterioration and interpretation in the park visitor center or via a park pamphlet.

Osceola (East) Ditch (5)

The Osceola (East) Ditch, as originally built in 1889-90, extended some eighteen miles on its north-northwesterly course, carrying water for hydraulic placer mining operations at nearby Osceola on the west side of the Snake Range. Including wooden flumes and a 600-foot tunnel north of Strawberry Creek, the ditch incorporated water from Burnt Mill Canyon, Mill, Strawberry, Lehman, and Sage creeks, and two branches of Weaver Creek. Some ten miles of this ditch are located in Great Basin National Park. Although abandoned for more than eighty years, the ditch can be followed for most of its length, and the flumes and some other components of the ditch can be recognized despite their collapsed and deteriorating condition. Remnants of stone foundations or rock alignments may be seen along the ditch in Burnt Mill Canyon.

It is recommended that the ditch be nominated to the National Register of Historic Places (a draft nomination form is included in this study) under Criterion C as having local significance. The present trail from the Wheeler Peak Scenic Road to the ditch should be developed as an interpretive trail. At the end of the trail a portion of the deteriorated wooden flume should be reconstructed and a limited portion of the ditch rewatered. This area should be the primary focus for interpretation of the ditch.



Present State of Site of Osceola (East) Ditch to be Interpreted





Present State of Site of Osceola (East) Ditch to be Interpreted

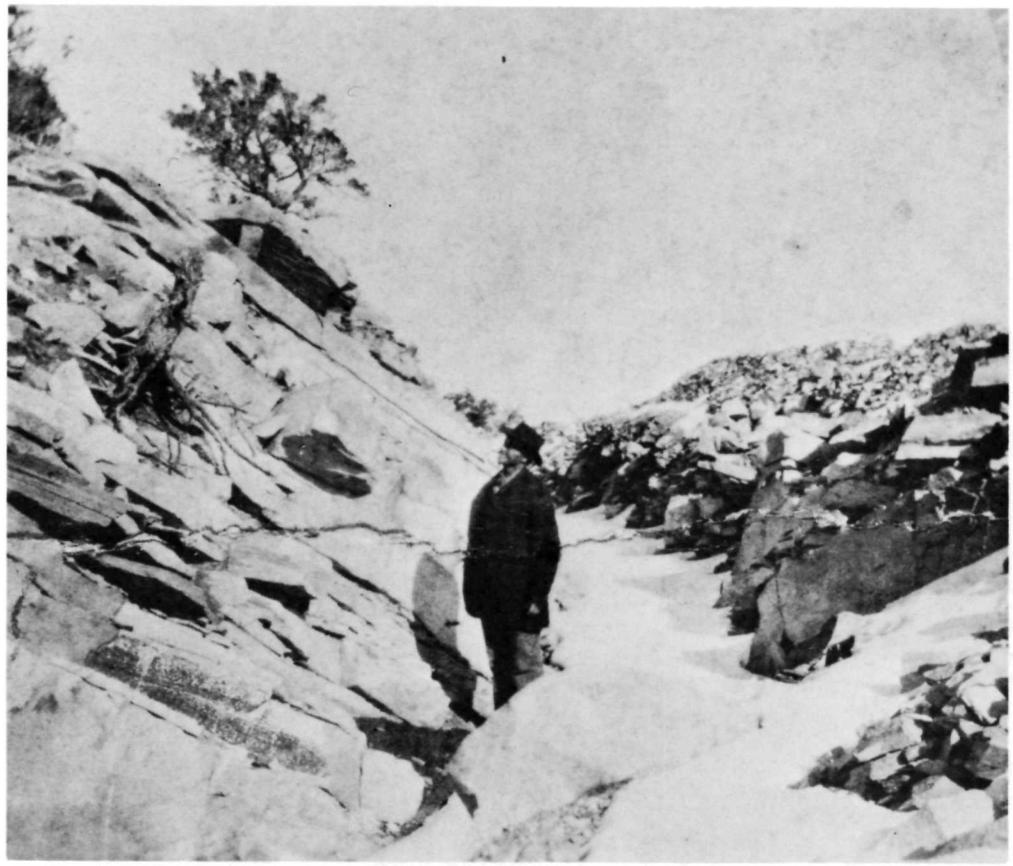




Stone Foundations Near Osceola (East) Ditch

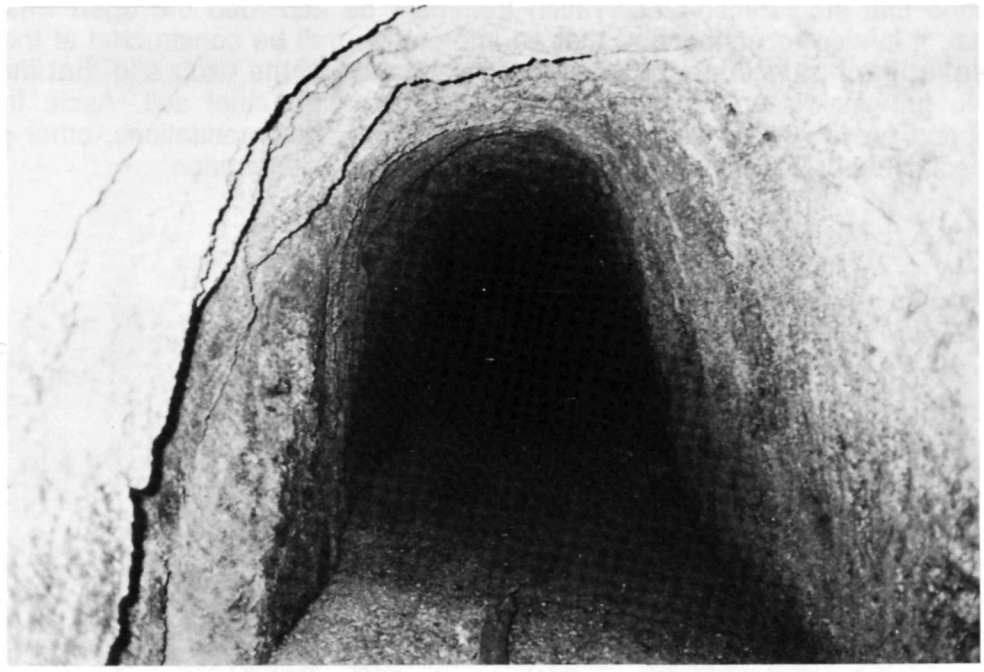


Absalom Lehman Standing on Osceola Ditch
Flume Supports in Lehman Canyon, ca. 1890



Absalom Lehman Standing in Osceola Ditch Excavation, ca. 1890

The 600-foot tunnel, one of the most significant engineering features of the Osceola (East) Ditch, is located near the northern boundary of the park in Strawberry Creek Canyon. It is recommended that stabilization/preservation treatment be accorded the open west-facing tunnel portal. It is also recommended that an interpretive trail be constructed at the tunnel site to interpret the historical and engineering significance of the ditch and that measures be taken to prevent visitors from entering the west-facing tunnel adit. Aside from the aforementioned preservation treatment and interpretation recommendations, other portions of the Osceola (East) Ditch are recommended for natural deterioration.





West Tunnel Adit



Osceola (East) Ditch in Strawberry Creek Canyon Near Tunnel

Stella Lake Rock Dam (6)

The Stella Lake Rock Dam was constructed in 1889-90 as part of the Osceola (East) Ditch. The rock and earthen dam with a masonry headgate was built at the outlet at the north end of Stella Lake to increase the lake's storage capacity and the summer flow of Lehman Creek, thus providing additional water for the ditch during the dry summer seasons. A second dam has been built north of the historic-period dam. A hiking trail crosses the second dam.

It is recommended that the historic rock dam be nominated to the National Register of Historic Places as a contributing resource to the Osceola (East) Ditch nomination under Criterion C. The rock dam should be accorded appropriate stabilization/preservation treatment and on-site interpretation.



Stella Lake Rock Dam





Stella Lake Rock Dam

Baker Lake Cabin (Peter Dieshman Cabin) (7)

The Baker Lake Cabin (sometimes referred to as the Peter Dieshman Cabin), located along the Baker Lake Trail about 1-1/4 miles below the lake, is a standing log structure on a simple stone foundation with a partially collapsed sod roof. The cabin, according to area tradition, was likely used by Dieshman, an early twentieth-century mining prospector in the area. The logs are chinked with shaved logs and sod, and the door and window frames consist of hand-shaped boards. A double-walled stovepipe passes through the roof. Because the site's history cannot be documented and its significance cannot be assessed, it does not meet National Register standards for eligibility under Criterion C. The cabin is recommended for natural deterioration, although appropriate measures should be taken to insure visitor safety. The cabin presents an opportunity for interpretation at the visitor center or via a park pamphlet.

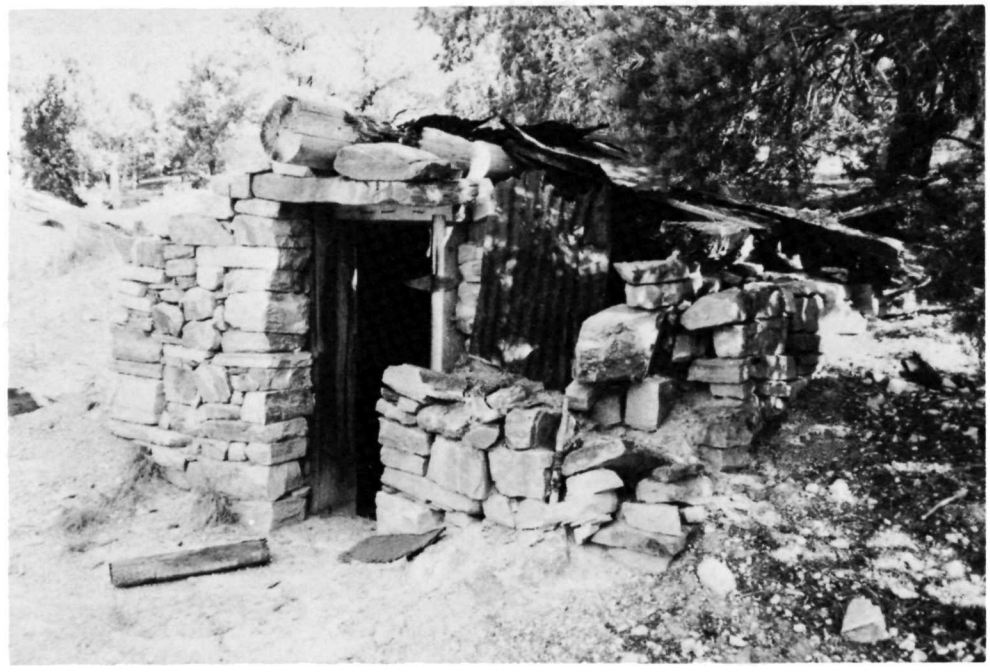




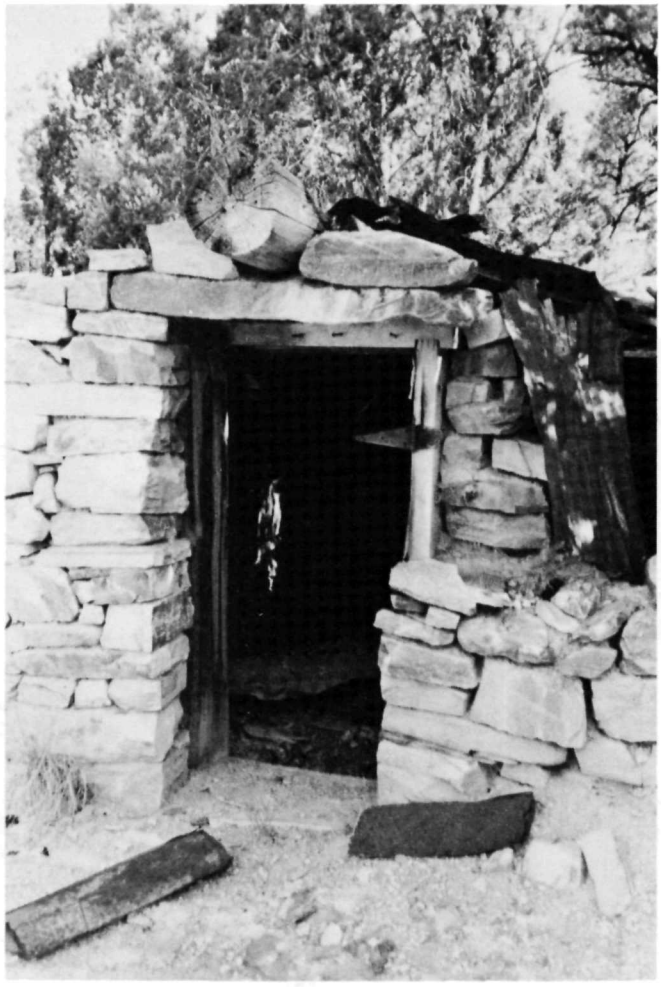
Baker Lake Cabin

Tilford Spring Cabin (8)

The Tilford Spring Cabin, located about 3/4 mile northwest of the Bonita Mine on the north side of the Snake Creek Road, is a partially collapsed, dry masonry, stone cabin built into the hillside with a rusting, deteriorated corrugated metal roof. Adjacent to the cabin on the west are a large berm and two large pits with rusting mining debris. The cabin was likely used by early 20th century mining prospectors. Across the road in front of the cabin is a dry masonry rock wall and concrete slab, indicating more recent mining activity at the site. In the vicinity are a stone-lined privy or storage cisterns, two tent platforms, and a wooden privy. Because the site lacks known historical documentation to assess its significance and its historic integrity has been compromised by recent activity, it does not meet National Register standards for eligibility under Criterion C. The cabin is recommended for natural deterioration with no visitor access or interpretation provided.



Tilford Spring Cabin



Tilford Spring Cabin

Shoshone Trail (9)

The Shoshone Trail, constructed by the U.S. Forest Service during the 1920s, extends from the upper Snake Creek drainage near the Johnson Lake trailhead to the North Fork of Big Wash with connections further south to Lincoln Spring and Murphy Wash. The trail was constructed to facilitate grazing management concerns, and the U.S. Forest Service later incorporated it into its national forest hiking trail system. The trail lacks significance under Criterion C of the National Register, and thus it is recommended that the trail be evaluated as part of the park backcountry trails plan.



Shoshone Trail Sign Near Johnson Lake Trailhead



Shoshone Trail

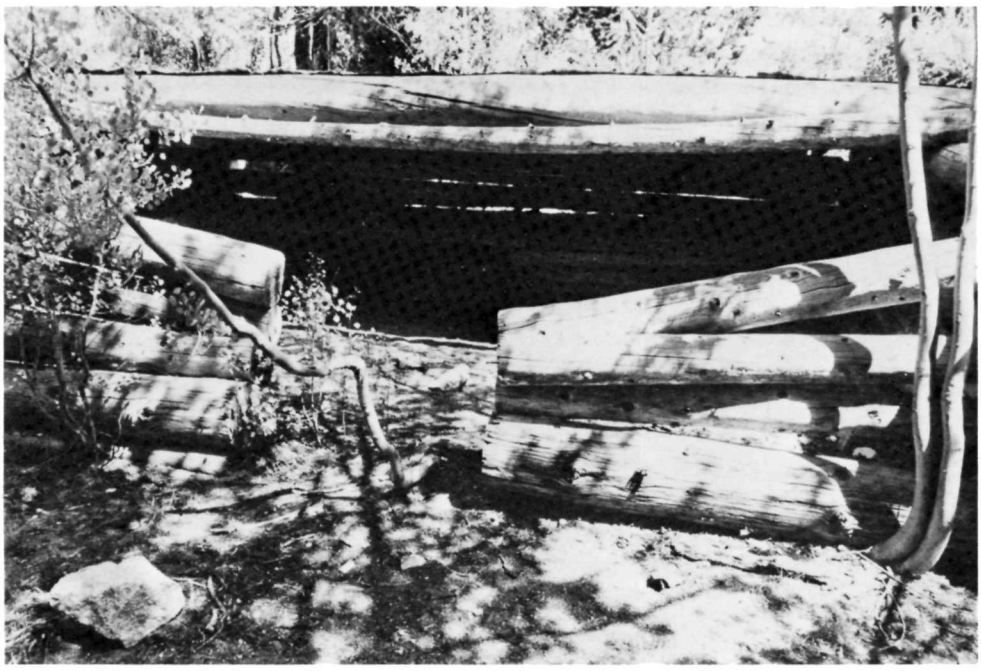
Johnson Mill (10)

Named for Alfred Johnson, the Johnson Mill site, located on both sides of the Johnson Lake Trail about 3/4 mile below the lake, consists of a partially collapsed two-story log mill that is in a state of serious deterioration and a partially collapsed log structure/stable with attached corral, which probably date from the period between the 1910s and the early 1930s. A recent deteriorating lean-to with corrugated metal roof is nearby. A built-up area at the western edge of the site may have been a loading or tent platform. The building's condition and its lack of distinctive or distinguishable architectural characteristics do not meet the National Register standards for significance under Criterion C. Thus, the site is recommended for natural deterioration, consistent with measures to insure visitor safety. The nonhistoric refuse scatter left by hikers at the site should be removed, but the historic mining artifacts should be left in place. The site provides an opportunity for interpretation at the visitor center or via a park pamphlet.





Johnson Mill



Log Structure/Corral Near Johnson Mill



Lean-to Near Johnson Mill

Johnson Mine (11-11A-11B)

The Johnson Mine at Johnson Lake, a tungsten producer developed by Alfred Johnson during the 1910s to early 1930s, consists of three components. The relatively inaccessible site at an elevation above 10,000 feet consists of four standing but partially collapsed log structures that served as the mining camp, a trash dump, a metal water pipe southeast of the lake (11), an aerial cable-way in place and a demolished cable-way terminal structure overlooking the lake (11A), and an unstable main adit and a partially collapsed open stope on the mountainside high above the lake (11B). Various test pits dot the landscape in the vicinity of the lake, and the remnants of a rock dam, probably constructed to insure a reliable flow of water to the Johnson Mill, lie at the southeast end of the lake. Considerable amounts of refuse scatter, lumber, logs, and deteriorating mining machinery remnants are scattered throughout the area. The deteriorating condition of the structures and their lack of distinctive or distinguishable architectural components do not meet the National Register standards for significance or integrity under Criterion C. Thus, the site is recommended for natural deterioration, consistent with measures to be undertaken to insure visitor safety. The nonhistoric refuse scatter should be removed, but the historic mining artifacts and machinery should be left in place. The mine presents an opportunity for interpretation at the visitor center or via a park pamphlet.



Partially Collapsed Two-Room Log Cabin at Johnson Mine
Just Below Johnson Lake



Partially Collapsed Log Building at Johnson Mine Just Below Johnson Lake



Partially Collapsed Log Structure at Johnson Mine Just Below Johnson Lake



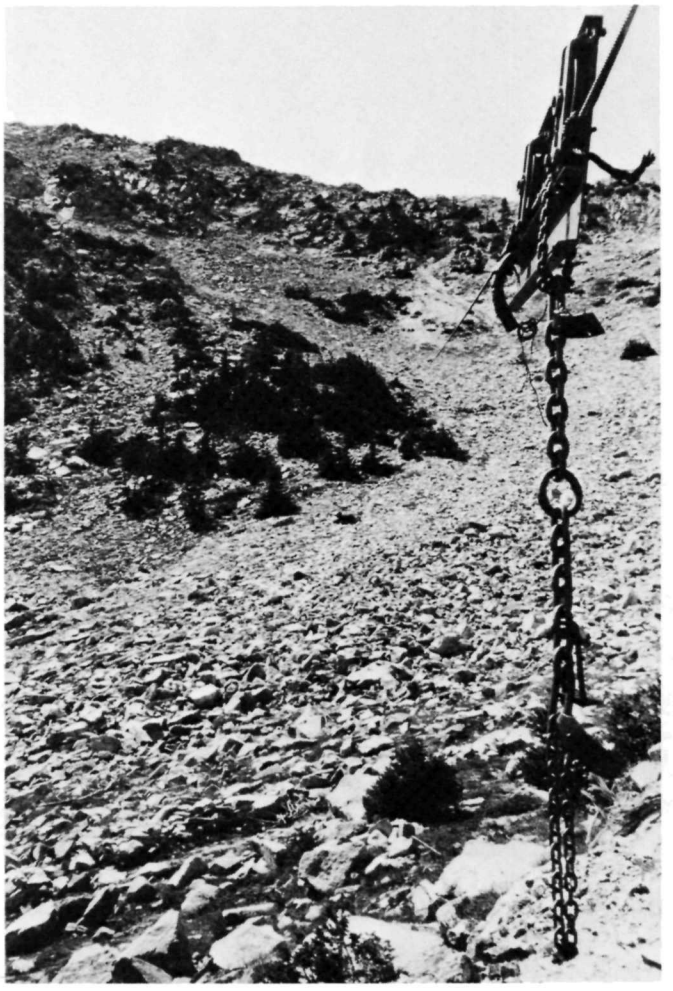
Partially Collapsed Log Cabin at Johnson Mine Just Below Johnson Lake



Cable-Way at Johnson Mine



Debris in Collapsed Cable-Way Terminal Structure at Johnson Mine



Cable-Way at Johnson Mine with Adit in Far Background



Johnson Mine Adit Near Ridge



Johnson Lake Dam



Johnson Lake from Bottom of Cable-Way

St. Lawrence "East" (12)

St. Lawrence "East" is a mining site east of the St. Lawrence Mine that contains a partially collapsed log cabin with a damaged stone chimney, at least six trenches that appear to be extensive bulldozer cuts (the largest trench is approximately 150 feet long, 20 feet wide, and 10 feet deep), and waste piles. The site lacks known historical documentation and distinctive architectural features, and thus does not meet the National Register standards for significance under Criterion C. The site is recommended for natural deterioration. Although located in a largely inaccessible area, measures should be undertaken to insure visitor safety. The site, however, does provide the opportunity for interpretation in the visitor center or via a park pamphlet.



Partially Collapsed Cabin at St. Lawrence "East"



Trench or Bulldozer Cut at St. Lawrence "East"

St. Lawrence "South" (13)

St. Lawrence "South" is a mining site directly across the canyon south of the St. Lawrence Mine that contains one standing log cabin, two partially collapsed log cabins, an adit on the verge of collapse with broken support structures, several prospect holes, a trench, and miscellaneous trash scatter. The site lacks known historical documentation, and its features and their condition do not exhibit distinctive characteristics sufficient to meet the National Register standards of significance and integrity under Criterion C. The site is recommended for natural deterioration, although measures should be undertaken to insure visitor safety.



Standing Log Cabin at St. Lawrence "South"



Adit at St. Lawrence "South"



Partially Collapsed Cabin at St. Lawrence "South"



Partially Collapsed Cabin at St. Lawrence "South"

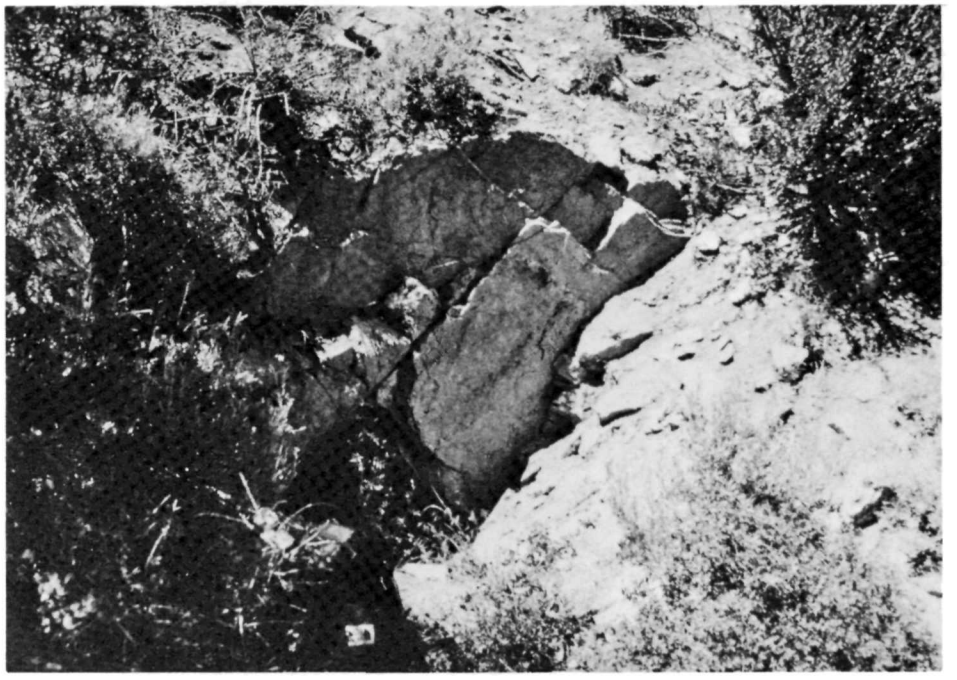
Shoshone Trail Log Structure Remnants (14)

There are log structure remains and two trash dumps near the junction of the Shoshone Trail and the Johnson Lake Trailhead. The log structure has only seven logs still in place, with some seven to ten logs in the immediate vicinity. There is no known historical documentation regarding its date of construction or historic function. Thus, the significance of the site cannot be assessed. Since the site does not meet National Register standards for eligibility under Criterion C, it is recommended for natural deterioration and should not be interpreted.



Pole Canyon Adit-East (15)

The Pole Canyon Adit-East is located on the north side of Pole Canyon in the vicinity of Kious Spring. It consists of an adit (approximately 3 feet wide, 2-1/2 feet tall, with a 6-foot vertical drop), tailings pile (approximately 30 feet by 30 feet some 20 feet downslope of the adit), and rotting timbers. Little is known about this site, and its significance cannot be assessed. Since it does not meet National Register standards for eligibility under Criterion C, the site is recommended for natural deterioration. The isolated and largely inaccessible site should not be interpreted.



Pole Canyon Adit-East

Ponderosa Mine (16)

The Ponderosa Mine, located just inside the park boundary about 1-1/4 miles northwest of the Lexington Arch, consists of adits, trenches, waste piles, an unstable inclined shaft partially filled with old lumber and stone, and a partially collapsed head frame spread over several acres. There is evidence at the site of mining activity dating back to the 1920s, but some of the trenches, a wooden platform, and a fire circle appear to be of more recent origin. Faint road scars continue uphill from the site, and mining features, including a log cabin, are found to the east outside the park boundary. Portions of the mining site show evidence of some natural revegetation during recent years. The deterioration of the mining features, coupled with the lack of identifiable associated components of a significant mining operation at the site, combine to minimize the mine's potential eligibility for listing on the National Register under Criterion C. The site is recommended for natural deterioration, but measures should be undertaken to insure visitor safety. The site should not be interpreted.





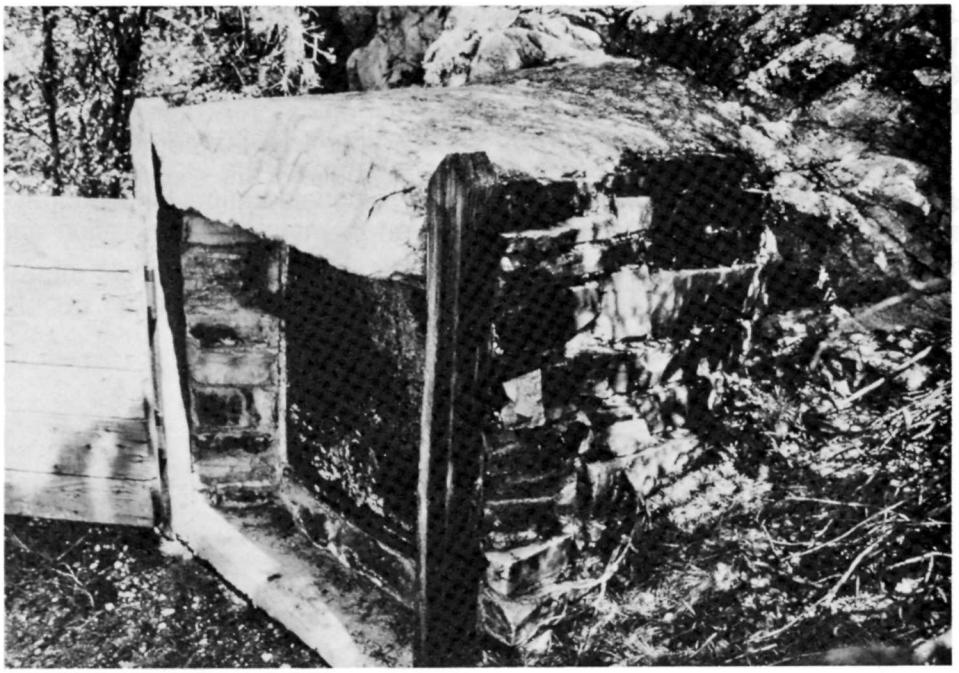
Ponderosa Mine

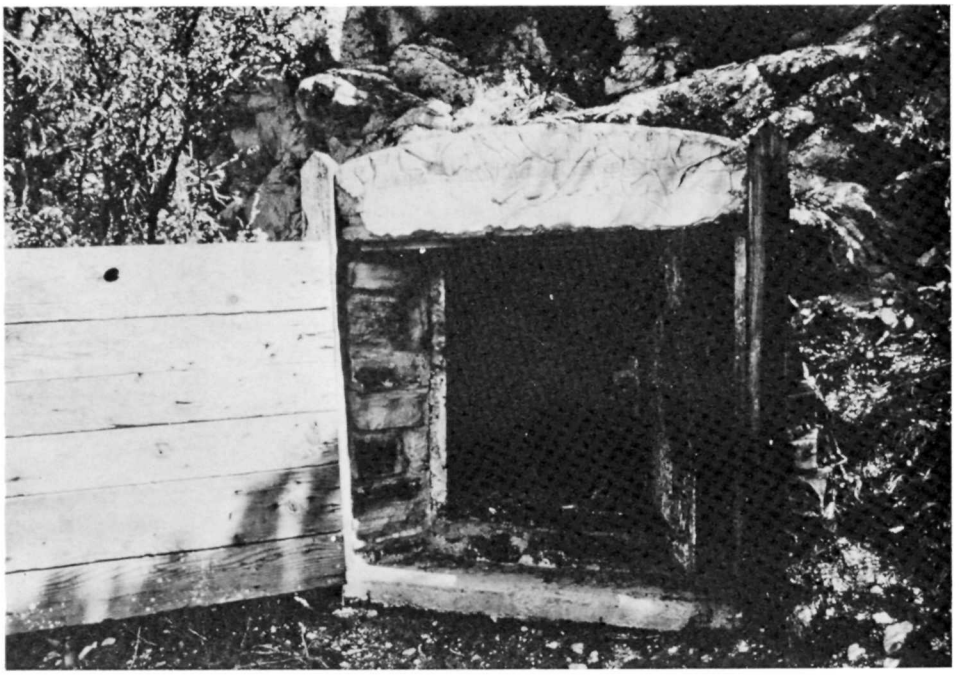
South Fork of Big Wash Sawmill (17)

The South Fork of Big Wash Sawmill, which probably dates back to the late nineteenth century, is located about 1/2 mile northwest of the Ponderosa Mine. Some log foundations, a cluster of rocks and concentration of lumber, the remains of an old log cabin with walls three to seven logs high, and a partially dismantled fire tube or fire box boiler mark the site. A collapsed pile of rock and lumber may have been the sawmill foundation. The log cabin and the boiler are the only features immediately recognizable, the other features having collapsed and their materials and artifacts removed from the site. The significance and integrity of the site have been compromised severely, thus eliminating it from consideration for National Register eligibility under Criterion C. The largely inaccessible site is recommended for natural deterioration and should not be interpreted.

Safe (18)

A historic safe is located in Pole Canyon near Baker Creek. The steel safe, constructed by the Cary Safe Company of Buffalo, New York, has an inscribed patent date of September 16, 1890. The safe is cemented into the base of a rock outcrop, and a masonry box has been built around it; the box has a wooden door. Stone steps lead to the safe from the creek. To date, research has not provided information relative to the date, purpose, or function of the safe. While the integrity of the site is good, the lack of known historical documentation to assess its significance precludes its consideration for National Register eligibility under Criterion C. The site is recommended for natural deterioration and should not be interpreted.





Safe

Dugout (19)

The dugout, located just south of the Pole Canyon-Baker Creek junction, is a wood-lined step-down shelter that was reportedly constructed for the National Park Service by Civil Works Administration or Civilian Conservation Corps personnel during the early 1930s. Inside dimensions of the dugout are approximately 7 feet x 7 feet x 6 feet in height. A bench is located across the south wall, and the roof, supported by bark-covered pine and aspen poles, contains a vent. Steps leading down into the shelter are gone, but there is evidence that a hatch door once covered the dugout opening. A platform in front of the dugout is defined by a retaining wall. The dugout was apparently used for storage purposes. The site lacks historical significance and integrity, and thus does not meet National Register standards under Criterion C. The site is recommended for natural deterioration and should not be interpreted.



Dugout



Dugout

Wagon Remnants Along Baker Lake Trail (20)

Wagon remnants are located on the south side of the Baker Lake Trail, approximately 1/2 mile west of the trailhead. The remnants include miscellaneous scattered metal and wooden parts. Traces of an old road head northeast from the wagon site. Because there is no known historical documentation to assess the significance of the site and the wagon remnants possess little integrity, the site does not meet National Register standards for eligibility under Criterion C. The site is recommended for natural deterioration and should not be interpreted.



Wagon Remnants Along Baker Lake Trail



Wagon Remnants Along Baker Lake Trail



Traces of Road with Wagon Remnants in Foreground

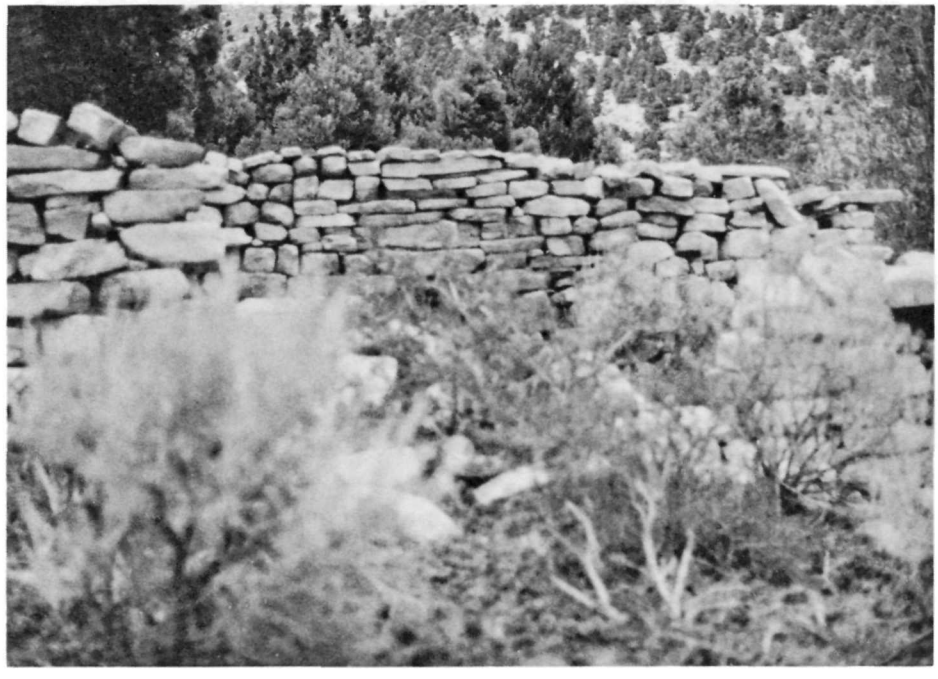
Young Canyon Stone House (21)

The Young Canyon Stone House is an isolated and partially collapsed stone structure in the vicinity of Kious Spring. The structure was built of double-coursed, dry-laid stone chinked with cut lumber. The stones are faced for a smooth appearance. A fireplace constitutes the main feature of the structure, the chimney forming a semicircular projection on the rear wall. The house measures approximately 22-3/4 feet by 14-3/4 feet, and the crumbling walls range between 1-1/2 and 5-1/2 feet in height. There is no evidence of roofing materials, and there are no associated structures or artifacts nearby. The integrity of the site is poor, and its significance cannot be assessed because of the lack of known historical documentation. Thus, this site does not meet the National Register standards for significance and integrity under Criterion C. The site is recommended for natural deterioration and should not be interpreted.



Young Canyon Stone House





Views of Young Canyon Stone House

Lincoln Canyon Mine/Tunnel (22)

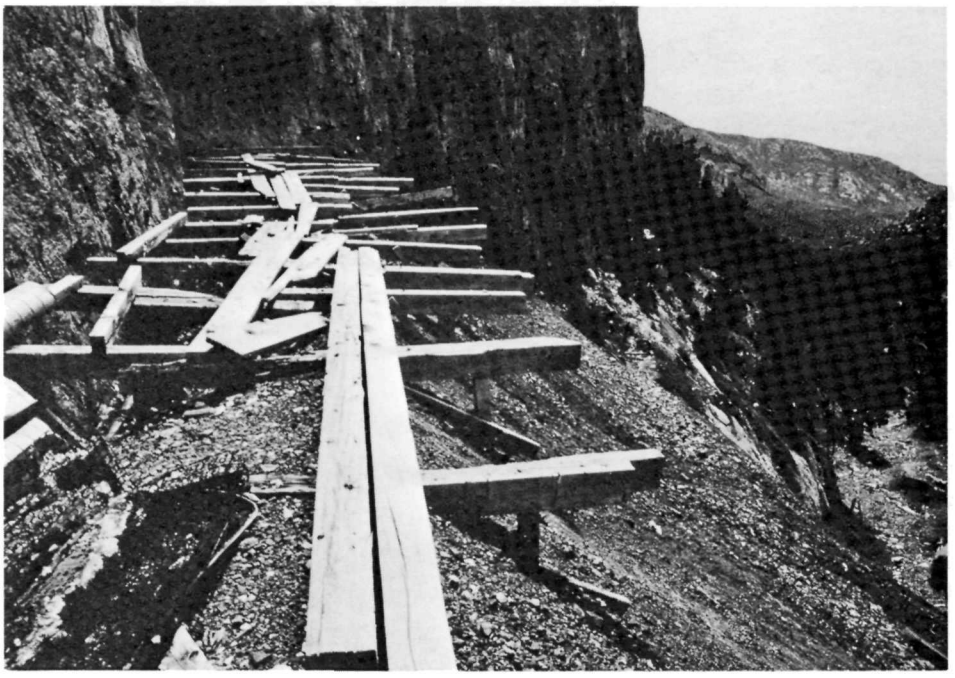
The Lincoln Canyon Mine/Tunnel Site consists of an adit, unstable waste dump tramway supports, and eroding waste piles. The waste piles appear to have once been a very extensive aggregate (approximately 400 feet x 300 feet x 150 feet deep), but more than half of the rock has washed downstream at least one-half mile. The operations were associated with the Mount Wheeler Mine activities during the 1950s and 1960s. The integrity of the site has been compromised by erosion and deterioration, and because of its association with mining operations during the 1950s and 1960s it does not meet the National Register standards for significance under Criterion C. The site is recommended for natural deterioration, but measures should be undertaken to insure visitor safety. The site presents the opportunity for interpretation at the visitor center or via a park pamphlet.



Lincoln Canyon Mine Adit



Lincoln Canyon Mine Waste Pile

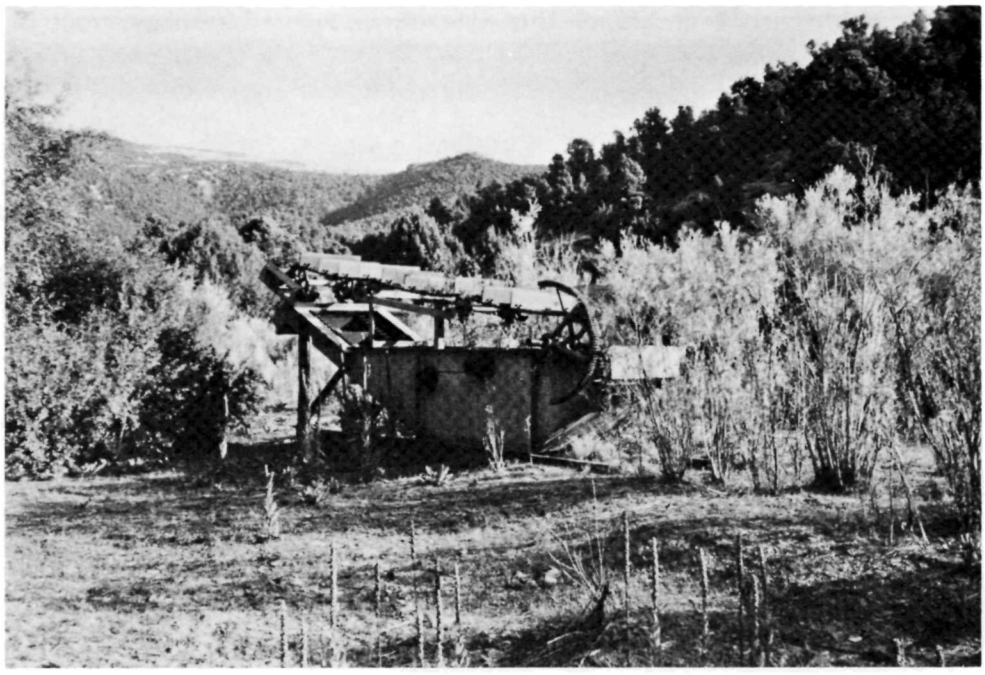


Lincoln Canyon Mine Tramway Supports

Bonita Mine (23)

Located on the south side of Snake Creek Road, some 3-1/2 miles west of the park boundary, the Bonita Mine, a tungsten and scheelite-bearing property, was first prospected by John D. Tilford in 1912. Camp Bonita was established in 1913, and the mine was developed during the early years of World War I and again during the early 1940s when tungsten was in demand. The mine site includes a winding one-mile road with some 24 partially covered or collapsed prospect pits, numerous trenches, and approximately 14 adits along its length. One collapsed wooden structure and a collapsed log loading platform are located along the road that winds uphill. Eight of the adits have head frames, one of which has a wooden door. Other features on the flat area above the creek include two masonry walls, a masonry trough, and two piles of stone rubble and lumber. A ditch for transporting water from a drainage west of the site crosses the slope below most of the adits and prospects but above the masonry features. A wooden feature at the uphill end of this ditch was either a bridge or flume. An old mechanized dredge or dragline is situated near the intersection of the mining road and Snake Creek Road.

There is evidence of Forest Service revegetation and trash removal efforts at the mine site within the past 20 years. As a result, some mining features at the base of the hill have been obscured or destroyed, leaving piles of rubble and compromising the integrity of the site. Since the mine is partially visible and easily accessible to park visitors from Snake Creek Road, it is recommended that the site, which does not meet National Register standards for integrity under Criterion C, be cleaned up and the debris and refuse removed. If possible, the site should be restored to its natural state. If this is not possible, measures should be undertaken to insure visitor safety.



Dredge or Dragline at Bonita Mine



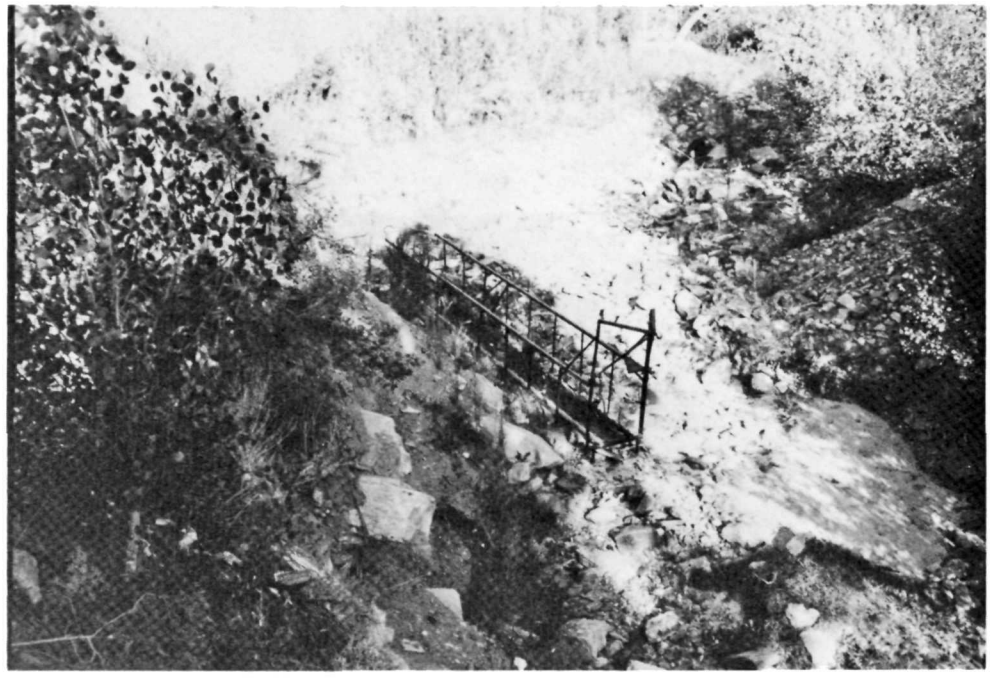
Debris at Bonita Mine



Collapsed Adit at Bonita Mine



Scar on Hillside at Bonita Mine



Metal Walkway in Snake Creek at Bonita Mine

Chapman-Taylor Mine (24)

The Chapman-Taylor Mine, a tungsten producing property first developed by W.L. Chapman and A.D. Taylor in 1915-16, consists of some trenches and cuts just north of Big Wash Spring in the North Fork of Big Wash. The evidence of ground disturbance at the site would appear to be of more recent origin. To the south of the spring are the remaining foundations of the Chapman-Taylor Cabin. The site possess few identifiable features associated with early mining operations, and its integrity has been compromised by more recent ground disturbance activities. Thus, the site does not meet National Register standards for significance and integrity under Criterion C. The site is recommended for natural deterioration and presents the opportunity for interpretation at the visitor center or via a park pamphlet.

Wagon Remnants Along Timber Creek Trail (25)

Wagon remnants are located on the south facing slope of the North Fork of Big Wash drainage. The remnants include miscellaneous scattered metal and wooden parts. Because there is no known historical documentation to assess the significance of the site and the wagon remnants possess little integrity, the site does not meet National Register standards for eligibility under Criterion C. The site is recommended for natural deterioration and should not be interpreted.

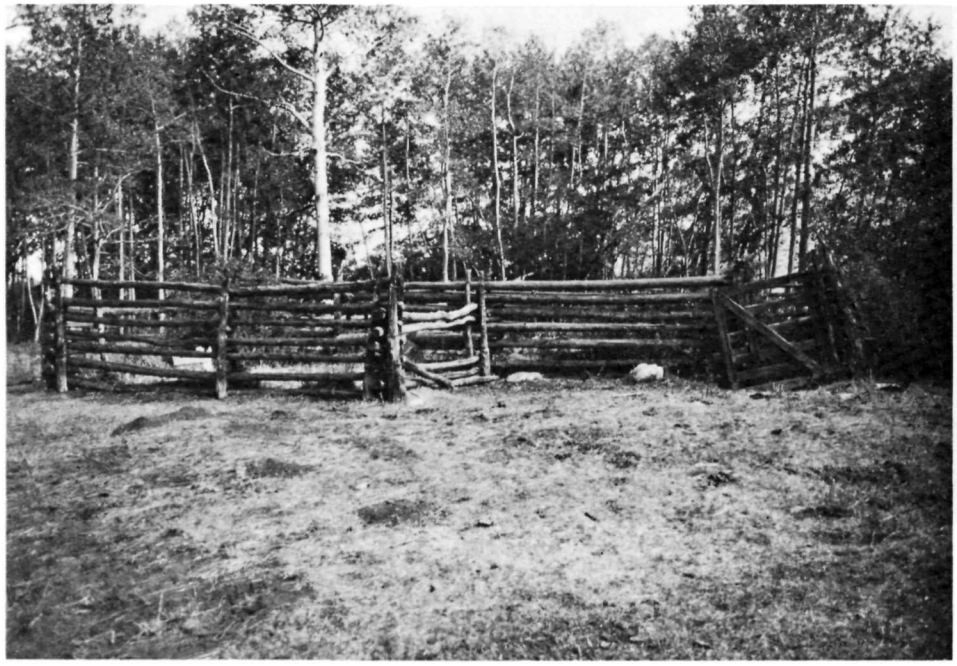


Timber Creek Trail Wagon Remnants

Robison's Corral (26)

Robison's Corral, located along a small spring-fed drainage road north of Strawberry Creek Road, is an enclosure built of pine logs and posts. While the extant corral's date of construction has not been established, it has been maintained and used until recent times by the Robisons, one of the area's early ranching families. The main part of the corral is approximately 32 feet by 32 feet with a small enclosure (13 feet by 13 feet) added to the northwest facing side. The large corral is entered by a chute built of milled lumber. Two water pipes, one abandoned and one still functioning, were used to bring water from a small nearby stream into a cut 50-gallon drum in the southern corner of the corral. The enclosure has been stabilized recently with heavy-duty braided galvanized wire bands.

In the absence of historical documentation regarding the origins of the corral, its significance cannot be assessed. The integrity of the corral has been compromised by continuing use and recent stabilization efforts. Thus, the site does not meet National Register standards for significance and integrity under Criterion C. The site is recommended for natural deterioration, and it presents the opportunity for interpretation at the visitor center or via a park pamphlet.



Robison's Corral

SIGNIFICANT MINES AND MINING–RELATED SITES OUTSIDE BUT NEAR PARK BOUNDARIES

Hub Mine

The Hub Mine, located in Section 28, T. 13 N., R. 68 E., is located in the Hub Mine Basin within one-half mile of the park's western boundary south-southwest of Baker Peak. The mine, one of the most prominent tungsten mines in the Snake Range since its development in the early 1900s, consists of numerous adits, prospect holes, shafts, and tailings piles in various stages of collapse and deterioration. The most prominent feature of the mine is the deep (100-150 feet) and narrow (6-15 feet) shaft that extends several thousand feet up the mountain side along the seam of the Hub vein. Near the mine are two frame cabins used by area sheepherders and one collapsed log cabin as well as cement platforms. In the vicinity of the cabins are stone foundations and leveled spots where cabins of the Hub mining camp once stood.



View of Hub Mine Vein Shaft



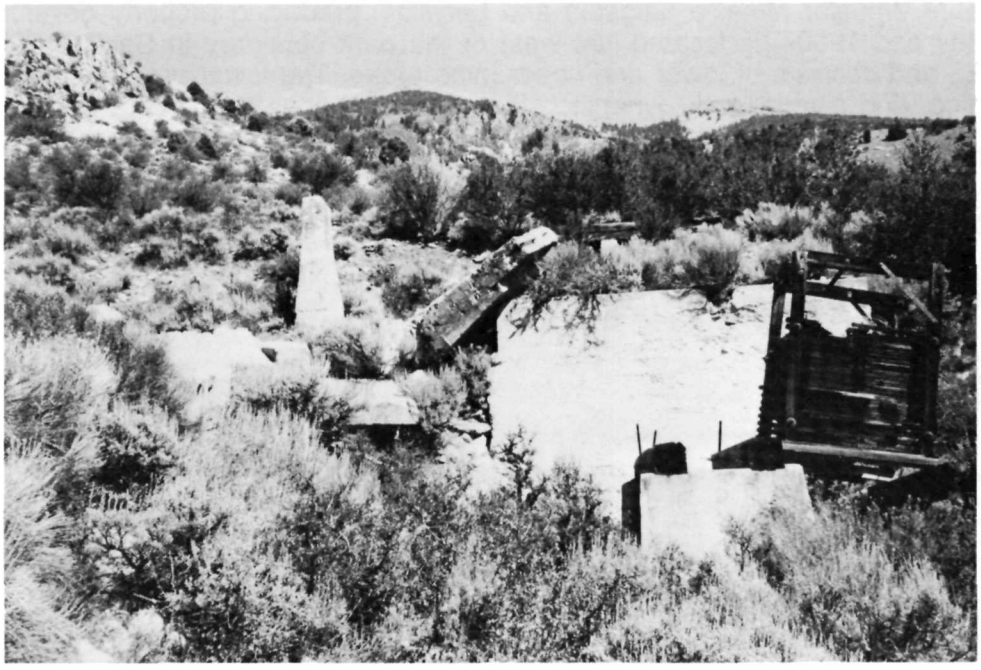
View of Hub Mine Vein Shaft



Two Cabins at Hub Mine



Collapsed Cabin at Hub Mine



Cement Foundations at Hub Mine



Site of Former Hub Mining Camp

Mount Wheeler Mine

The Mount Wheeler Mine, a tungsten and beryllium producing property developed during the 1950s and 1960s, is located just west of the park boundary in Section 15, T. 12 N., R. 68 E., and consists of lower and upper mine areas. The lower area has a bunk house, outbuilding, and cinder block dynamite structure. The upper area has a geologist building housing numerous core samples, four tin buildings including a compressor house, an old trailer, a wooden dumping support structure, a mine tunnel entrance with trackage, tailings piles, and assorted debris.



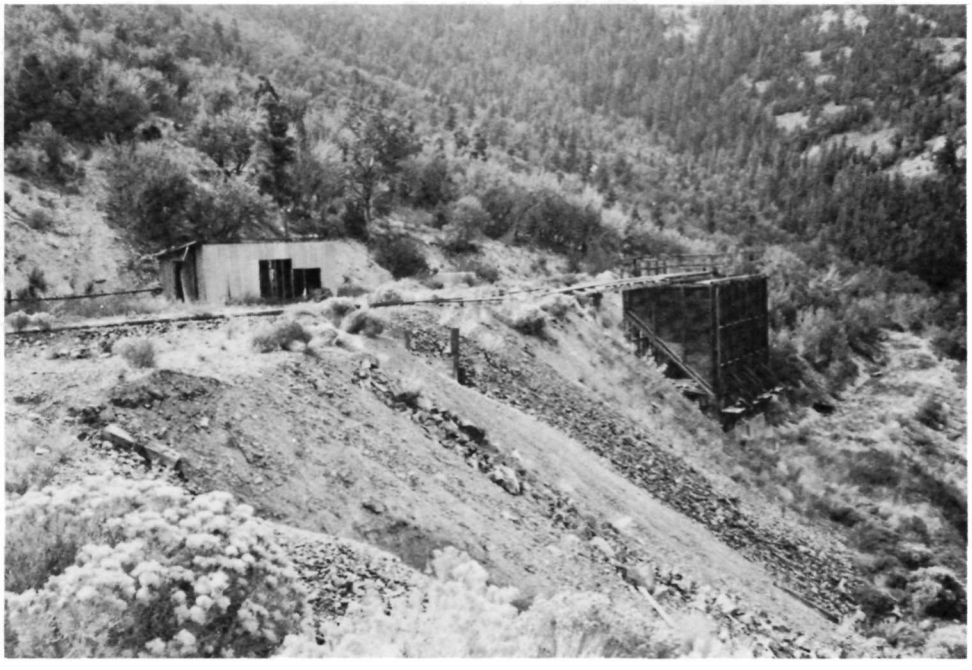
Looking Down on Lower Mine Area from Upper Mine Area



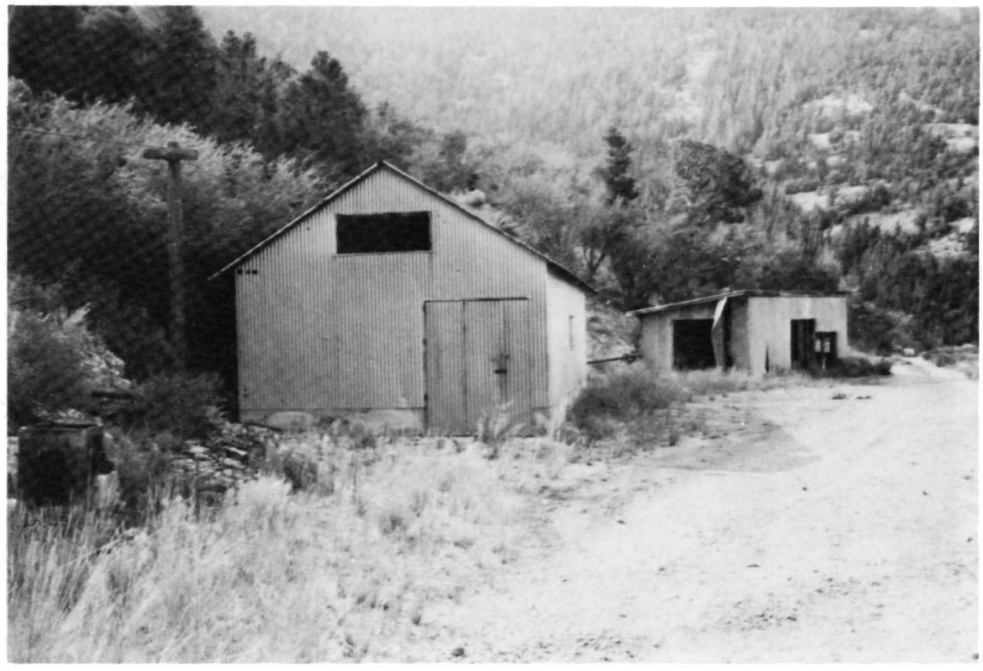
Cinder Block Dynamite Structure



Geologist Building



Upper Mine Area/Wooden Dumping Support Structure



Upper Mine Area Buildings



Main Shaft of Mount Wheeler Mine

St. Lawrence Mine

The St. Lawrence Mine, located in Section 14, T. 12 N., R. 68 E., is situated in the "keyhole" area near the park's west boundary in the vicinity of Mount Washington. A major producer of lead, zinc, and tungsten, the mine was first developed in 1906, expanded significantly during the pre-World War I and early war years, and reopened during the late 1930s and again in the late 1940s. The mine area consists of some 1,500 feet of ground disturbance along the St. Lawrence vein, with numerous adits, shafts, trenches, and waste piles, virtually all of which are partially collapsed or crumbling. There are a variety of historic structures, including log cabins, loading platforms, and a cable way, which range in condition from partial deterioration to near collapse. Remnants of mining machinery and debris are in evidence.





Views of Cabins at St. Lawrence Mine



View of Cableway Remnants at St. Lawrence Mine



View of Cableway Remnants at St. Lawrence Mine





Views of Cabins at St. Lawrence Mine



Cabin at St. Lawrence Mine



Sled at St. Lawrence Mine





Views of Collapsed Adits and Shafts at St. Lawrence Mine



Mine Structure Remnants at St. Lawrence Mine



Cabin at St. Lawrence Mine

St. Lawrence "West"

St. Lawrence "West" is located about 100 feet south of the Mount Washington Jeep Road in Section 22, T. 12 N., R. 68 E. south-southwest of the Mount Wheeler Mine. The site consists of four collapsed log cabins (two with collapsed stone chimneys) and a prospect pit. The cabins appear to date from the 1920s, but their relationship to specific area mining operations has not been determined.



Cabin Remains at St. Lawrence "West"





Views of Cabin Remains at St. Lawrence "West"



Cabin Remains at St. Lawrence West

EPILOGUE

During the past two centuries the area of present-day Great Basin National Park has played a role in many of the passing stages of the American Southwest frontier. While the earliest Euroamerican presence in the Great Basin occurred in 1776 with the Spanish expeditions of Escalante-Domínguez and Garcés, the first known Euroamerican to pass within the vicinity of the park area (via Sacramento Pass) was Jedediah Smith, a fur trapper and trader, mountain man, and explorer, in 1827. The Great Basin received increasing attention by Americans during the 1840s as the result of the widely-heralded explorations of John Charles Frémont, who gave the region its name, and the reports and experiences of emigrant parties on their way to new homes in California and later of the hordes crossing the American Southwest to participate in the California Gold Rush. First claimed by Spain and then by Mexico after that country's independence was achieved in 1821, the area of the park, along with much of the Southwest, became American territory in 1848 as a result of the Treaty of Guadalupe Hidalgo ending the Mexican War.

The earliest vestiges of Euroamerican civilization came to the park vicinity in the 1850s. During that decade Mormons from Utah Territory explored the park vicinity, made the first documented ascent of Wheeler Peak, and established the first agricultural settlement in Snake Valley at present-day Garrison. The decade also witnessed efforts by Howard R. Egan and Captain James H. Simpson to establish a trail and military wagon road, respectively, across the central route of the Great Basin via Sacramento Pass in the vicinity of the park.

Scientific and government studies and surveys in the park region were commenced during the 1860s. First Lieutenant George M. Wheeler traversed the park vicinity during the late 1860s while conducting his initial investigations that eventually developed into the United States Geographical Surveys West of the One Hundredth Meridian. John Muir visited the Wheeler Peak area during the late 1870s while traveling through the West, making observations and collecting data for his writings that promoted conservation and protection of America's natural resources. During the late 1870s and 1880s the U.S. Coast and Geodetic Survey established a triangulation station on Wheeler Peak (remnants of the station structures' rock foundations are extant) as part of its 2,500-mile geodetic connection between the Pacific and Atlantic coasts along the 39th parallel of latitude – the first large land-scale trigonometrical survey of the nation.

Mining and agricultural development occurred in the Snake Range and adjacent Snake and Spring valleys beginning in 1869. As an outgrowth of the White Pine mining rush which commenced in eastern Nevada in 1865, mining districts were first established in the Snake Range in 1869. Eventually six mining districts would be created on lands now in the park, and mines producing silver, lead, gold, tungsten, scheelite, and beryllium would be developed in the park area and vicinity. While the most extensive and productive mines in the park vicinity, such as the St. Lawrence, Hub, and Mount Wheeler and the Osceola placer and lode operations, lie outside the park boundaries, various mines of lesser importance are found in the park. These operations include the Johnson, Ponderosa, Bonita, and Chapman-Taylor mines, the Pole Canyon Adit-East, and the Lincoln Canyon Mine/Tunnel. Some 10 miles of the 18-mile Osceola (East) Ditch, constructed in 1889-90 to carry water to the Osceola placer mining operations, are located in the park, and the ditch is being recommended for listing on the National Register of Historic Places. Throughout the park are the remains of various isolated mining-related cabins or cabin groups, such as the Baker Lake Cabin, Tilford Spring Cabin, Young Canyon Stone House, and the St. Lawrence "East" and "South" cabin groups. The Johnson Mill, an ore-processing facility in upper Snake Creek Canyon, and the South Fork of Big Wash Sawmill,

a lumber-cutting operation, are examples of early mining-related industrial development within the park boundaries.

The first permanent settlers entered Snake and Spring valleys in 1869, establishing ranches and farms to provide fruit, vegetables, meat, dairy products, and other foodstuffs for the growing number of scattered mining settlements in eastern Nevada. During the next several decades the increasing number of ranchers formed the nucleus of fledgling agricultural communities in the park vicinity, including Baker, Garrison, and Burbank. As the area's initial mining rush activities subsided during the 1870s, the dominant economic activity in the park vicinity became livestock raising, the Snake Range providing forage for summer grazing operations for large numbers of cattle and sheep.

Absalom S. Lehman, one of the earliest settlers and ranchers in Snake Valley, discovered what would become known as Lehman Caves about 1885. During the next six years he began developing, publicizing, and opening the caverns for tours. At the same time he planted an orchard just below the mouth of the cave and constructed a 2-mile aqueduct or ditch to convey water from Lehman Creek and several other nearby sources to his orchard and homestead. The extant remains of the orchard and aqueduct were listed on the National Register of Historic Places in 1975.

During the early 20th century much of the southern Snake Range was placed under the jurisdiction of federal land management agencies as a means of protecting and conserving the area's resources. In 1909 Nevada National Forest was established, and a significant portion of the range, including the present park area, came under the administration of the recently-established U.S. Forest Service in two land designations in 1909 and 1912. As part of its conservation ethic, the bureau favored a multiple-purpose resource utilization policy under which the land and its resources would serve a variety of regulated economic functions.

In 1922 Lehman Caves National Monument was established by presidential proclamation under the authority of the Antiquities Act of 1906. Under the administration of the Forest Service the national monument was the recipient of increasing visitation during the 1920s, resulting in the construction of new visitor facilities and overnight accommodations. Built in the late 1920s and named for Clarence and Beatrice Rhodes, who served as the Lehman Caves custodians during the 1920s and early 1930s, the Rhodes Cabin is a representative example of such accommodations. Although moved from its original location and placed on a concrete foundation during the 1960s, the restored log cabin was listed on the National Register in 1975. The national monument was administered by the Forest Service until 1933 when it was transferred to the National Park Service as part of a major reorganization of the federal government's executive department. The movement to enlarge the national monument and change its designation to national park status, first initiated in 1924, finally achieved success on October 17, 1986, with the establishment of Great Basin National Park.

APPENDIXES

APPENDIX A

JOHN C. FREMONT'S OBSERVATIONS ON THE GREAT BASIN WRITTEN AT UTAH LAKE ON MAY 24, 1844

In arriving at the Utah lake, we had completed an immense circuit of twelve degrees diameter north and south, and ten degrees east and west; and found ourselves, in May, 1844, on the same sheet of water which we had left in September, 1843. The Utah is the southern limb of the Great Salt lake; and thus we had seen that remarkable sheet of water both at its northern and southern extremity, and were able to fix its position at these two points. The circuit which we had made, and which had cost us eight months of time, and 3,500 miles of travelling, had given us a view of Oregon and of North California from the Rocky mountains to the Pacific ocean, and of the two principal streams which form bays or harbors on the coast of that sea. Having completed this circuit, and being now about to turn the back upon the Pacific slope of our continent, and to recross the Rocky mountains, it is natural to look back upon our footsteps, and take some brief view of the leading features and general structure of the country we had traversed. These are peculiar and striking, and differ essentially from the Atlantic side of our country. The mountains all are higher, more numerous, and more distinctly defined in their ranges and directions; and, what is so contrary to the natural order of such formations, one of these ranges, which is near the coast, (the Sierra Nevada and the Coast Range,) presents higher elevations and peaks than any which are to be found in the Rocky mountains themselves. In our eight months' circuit, we were never out of sight of snow; and the Sierra Nevada, where we crossed it, was near 2,000 feet higher than the South Pass in the Rocky mountains. In height, these mountains greatly exceed those of the Atlantic side, constantly presenting peaks which enter the region of eternal snow; and some of them volcanic, and in a frequent state of activity. They are seen at great distances, and guide the traveller in his courses.

The course and elevation of these ranges give direction to the rivers and character to the coast. No great river does, or can, take its rise below the Cascade and Sierra Nevada range; the distance to the sea is too short to admit of it. The rivers of the San Francisco bay, which are the largest after the Columbia, are local to that bay, and lateral to the coast, having their sources about on a line with the Dalles of the Columbia, and running each in a valley of its own, between Coast range and the Cascade and Sierra Nevada range. The Columbia is the only river which traverses the whole breadth of the country, breaking through all the ranges, and entering the sea. Drawing its waters from a section of ten degrees of latitude in the Rocky mountains, which are collected into one stream by three main forks (Lewis's, Clark's, and the North fork) near the centre of the Oregon valley, this great river thence proceeds by a single channel to the sea, while its three forks lead each to a pass in the mountains, which opens the way into

the interior of the continent. This fact in relation to the rivers of this region gives an immense value to the Columbia. Its mouth is the only inlet and outlet to and from the sea; its three forks lead to the passes in the mountains; it is therefore the only line of communication between the Pacific and the interior of North America; and all operations of war or commerce, of national or social intercourse, must be conducted upon it. This gives it a value beyond estimation, and would involve irreparable injury if lost. In this unity and concentration of its waters, the Pacific side of our continent differs entirely from the Atlantic side, where the waters of the Allegany mountains are dispersed into many rivers, having their different entrances into the sea, and opening many lines of communication with the interior.

The Pacific coast is equally different from that of the Atlantic. The coast of the Atlantic is low and open, indented with numerous bays, sounds, and river estuaries, accessible every where, and opening by many channels into the heart of the country. The Pacific coast, on the contrary, is high and compact, with few bays, and but one that opens into the heart of the country. The immediate coast is what the seamen call *iron bound*. A little within, it is skirted by two successive ranges of mountains, standing as ramparts between the sea and the interior country; and to get through which, there is but one gate, and that narrow and easily defended. This structure of the coast, backed by these two ranges of mountains, with its concentration and unity of waters, gives to the country an immense military strength, and will probably render Oregon the most impregnable country in the world.

Differing so much from the Atlantic side of our continent, in coast, mountains, and rivers, the Pacific side differs from it in another most rare and singular feature—that of the Great interior Basin, of which I have so often spoken, and the whole form and character of which I was so anxious to ascertain. Its existence is vouched for by such of the American traders and hunters as have some knowledge of that region; the structure of the Sierra Nevada range of mountains requires it to be there; and my own observations confirm it. Mr. Joseph Walker, who is so well acquainted in those parts, informed me that, from the Great Salt lake west, there was a succession of lakes and rivers which have no outlet to the sea, nor any connexion with the Columbia, or with the Colorado of the Gulf of California. He described some of these lakes as being large, with numerous streams, and even considerable rivers, falling into them. In fact, all concur in the general report of these interior rivers and lakes; and, for want of understanding the force and power of evaporation, which so soon establishes an equilibrium between the loss and supply of waters, the fable of whirlpools and subterraneous outlets has gained belief, as the only imaginable way of carrying off the waters which have no visible discharge. The structure of the country would require this formation of interior lakes; for the waters which would collect between the Rocky mountains and the Sierra Nevada, not being able to cross this formidable barrier, nor to get to the Columbia or the Colorado, must naturally collect into reservoirs, each of which would have its little system of streams and rivers to supply it. This would be the natural effect; and what I saw went to confirm it. The Great Salt lake is a formation of this kind, and quite a large one; and having many streams, and one considerable river, four or five hundred miles long, falling into it. This lake and river I saw and examined myself; and also saw

the Wah-satch and Bear River mountains which enclose the waters of the lake on the east, and constitute, in that quarter, the rim of the Great Basin. Afterwards, along the eastern base of the Sierra Nevada, where we travelled for forty-two days, I saw the line of lakes and rivers which lie at the foot of that Sierra; and which Sierra is the western rim of the Basin. In going down Lewis's fork and the main Columbia, I crossed only inferior streams coming in from the left, such as could draw their water from a short distance only; and I often saw the mountains at their heads, white with snow; which, all accounts said, divided the waters of the *desert* from those of the Columbia, and which could be no other than the range of mountains which form the rim of the Basin on its northern side. And in returning from California along the Spanish trail, as far as the head of the Santa Clara fork of the Rio Virgen, I crossed only small streams making their way south to the Colorado, or lost in sand—as the Mo-hah-ve; while to the left, lofty mountains, their summits white with snow, were often visible, and which must have turned water to the north as well as to the south, and thus constituted, on this part, the southern rim of the Basin. At the head of the Santa Clara fork, and in the Vegas de Santa Clara, we crossed the ridge which parted the two systems of waters. We entered the Basin at that point, and have travelled in it ever since, having its southeastern rim (the Wah-satch mountain) on the right, and crossing the streams which flow down into it. The existence of the Basin is therefore an established fact in my mind; its extent and contents are yet to be better ascertained. It cannot be less than four or five hundred miles each way, and must lie principally in the Alta California; the demarcation latitude of 42° probably cutting a segment from the north part of the rim. Of its interior, but little is known. It is called a *desert*, and, from what I saw of it, sterility may be its prominent characteristic; but where there is so much water, there must be some *oasis*. The great river, and the great lake, reported, may not be equal to the report; but where there is so much snow, there must be streams; and where there is no outlet, there must be lakes to hold the accumulated waters, or sands to swallow them up. In this eastern part of the Basin, containing Sevier, Utah, and the Great Salt lakes, and the rivers and creeks falling into them, we know there is good soil and good grass, adapted to civilized settlements. In the western part, on Salmon Trout river, and some other streams, the same remark may be made.

The contents of this Great Basin are yet to be examined. That it is peopled, we know; but miserably and sparsely. From all that I heard and saw, I should say that humanity here appeared in its lowest form, and in its most elementary state. Dispersed in single families; without fire armed eating seeds and insects; digging roots, (and hence their name)—such is the condition of the greater part. Others are a degree higher, and live in communities upon some lake or river that supplies fish, and from which they repulse the miserable *Digger*. The rabbit is the largest animal known in this desert; its flesh affords a little meat; and their bag-like covering is made of its skins. The wild sage is their only wood, and here it is of extraordinary size—sometimes a foot in diameter, and six or eight feet high. It serves for fuel, for building material, for shelter to the rabbits, and for some sort of covering for the feet and legs in cold weather. Such are the accounts of the inhabitants and productions of the Great Basin; and which, though imperfect, must have some foundation, and excite our desire to know the whole.

The whole idea of such a desert, and such a people, is a novelty in our country, and excites Asiatic, not American ideas. Interior basins, with their own systems of lakes and rivers, and often sterile, are common enough in Asia; people still in the elementary state of families, living in deserts, with no other occupation than the mere animal search for food, may still be seen in that ancient quarter of the globe; but in America such things are new and strange, unknown and unsuspected, and discredited when related. But I flatter myself that what is discovered, though not enough to satisfy curiosity, is sufficient to excite it, and that subsequent explorations will complete what has been commenced.

"A Report of the Exploring Expedition to Oregon and North California in the Years 1843-44," in *Report of the Exploring Expedition to the Rocky Mountains by John Charles Fremont* (Readex Microprint Corporation, 1966), pp. 274-77.

APPENDIX B

GEOGRAPHICAL MEMOIR UPON UPPER CALIFORNIA IN ILLUSTRATION OF HIS MAP OF OREGON AND CALIFORNIA BY JOHN C. FREMONT (WASHINGTON, 1848)

THE GREAT BASIN

East of the Sierra Nevada, and between it and the Rocky Mountains, is that anomalous feature in our continent, the Great Basin, the existence of which was advanced as a theory after the second expedition, and is now established as a geographical fact. It is a singular feature: a basin of some five hundred miles diameter every way, between four and five thousand feet above the level of the sea, shut in all around by mountains, with its own system of lakes and rivers, and having no connection whatever with the sea. Partly arid and sparsely inhabited, the general character of the Great Basin is that of desert, but with great exceptions, there being many parts of it very fit for the residence of a civilized people; and of these parts, the Mormons have lately established themselves in one of the largest and best. Mountain is the predominating structure of the interior of the Basin, with plains between—the mountains wooded and watered, the plains arid and sterile. The interior mountains conform to the law which governs the course of the Rocky Mountains and of the Sierra Nevada, ranging nearly north and south, and present a very uniform character of abruptness, rising suddenly from a narrow base of ten to twenty miles, and attaining an elevation of two to five thousand feet above the level of the country. They are grassy and wooded, showing snow on their summit peaks during the greater part of the year, and affording small streams of water from five to fifty feet wide, which lose themselves, some in lakes, some in the dry plains, and some in the belt of alluvial soil at the base; for these mountains have very uniformly this belt of alluvion, the wash and abrasion of their sides, rich in excellent grass, fertile, and light and loose enough to absorb small streams. Between these mountains are the arid plains which receive and deserve the name of desert. Such is the general structure of the interior of the Great Basin, more Asiatic than American in its character, and much resembling the elevated region between the Caspian sea and northern Persia. The rim of this basin is massive ranges of mountains, of which the Sierra Nevada on the west, and the Wasatch and Timpanogos chains on the east, are the most conspicuous. On the north, it is separated from the waters of the Columbia by a branch of the Rocky Mountains, and from

the Gulf of California, on the south, by a bed of mountainous ranges, of which the existence has been only recently determined. Snow abounds on them all; on some, in their loftier parts, the whole year, with wood and grass; with copious streams of water, sometimes amounting to considerable rivers, flowing inward, and forming lakes or sinking in the sands. Belts or benches of good alluvion are usually found at their base.

Lakes in the Great Basin. The Great Salt Lake and the Utah Lake are in this basin, toward its eastern rim, and constitute its most interesting feature—one, a saturated solution of common salt, the other, fresh—the Utah about one hundred feet above the level of the Salt Lake, which is itself four thousand two hundred above the level of the sea, and connected by a strait, or river, thirty-five miles long.

These lakes drain an area of ten or twelve thousand square miles, and have, on the east, along the base of the mountain, the usual bench of alluvion, which extends to a distance of three hundred miles, with wood and water, and abundant grass. The Mormons have established themselves on the strait between these two lakes, and will find sufficient arable land for a large settlement—important from its position as intermediate between the Mississippi Valley and the Pacific Ocean, and on the line of communication to California and Oregon.

The Utah is about thirty-five miles long, and is remarkable for the numerous and bold streams which it receives, coming down from the mountains on the southeast, all fresh water, although a large formation of rock salt, imbedded in red clay, is found within the area on the southeast, which it drains. The lake and its affluents afford large trout and other fish in great numbers, which constitute the food of the Utah Indians during the fishing season. The Great Salt Lake has a very irregular outline, greatly extended at times of melting snows. It is about seventy miles in length, both lake ranging nearly north and south, in conformity to the range of the mountains, and is remarkable for its predominance of salt. The whole lake waters seem thoroughly saturated with it, and every evaporation of the water leaves salt behind. The rocky shores of the islands are whitened by the spray, which leaves salt on everything it touches, and a covering like ice forms over the water, which the waves throw among the rocks. The shores of the lake in the dry season, when the waters recede, and especially on the south side, are whitened with encrustations of fine white salt; the shallow arms of the lake, at the same time, under a slight covering of briny water, present beds of salt for miles, resembling softened ice, into which the horses' feet sink to the fetlock. Plants and bushes, blown by the wind upon these fields, are entirely encrusted with crystallized salt, more than an inch in thickness. Upon this lake of salt the fresh water received, though great in quantity,

has no perceptible effect. No fish, or animal life of any kind, is found in it, the larvæ on the shore being found to belong to winged insects. A geological examination of the bed and shores of this lake is of the highest interest.

Five gallons of water taken from this lake in the month of September, and roughly evaporated over a fire, gave fourteen pints of salt, a part of which, being subjected to analysis, gave the following proportions:

Chloride of sodium (common salt)	97.80	parts.
Chloride of calcium	0.61	"
Chloride of magnesium	0.24	"
Sulphate of soda	0.23	"
Sulphate of lime	1.12	"
	100.00	

Southward from the Utah is another lake of which little more is now known than when Humboldt published his general map of Mexico. It is the reservoir of a handsome river, about two hundred miles long, rising in the Wasatch mountains, and discharging a considerable volume of water. The river and lake were called by the Spaniards Severe, corrupted by the hunters into Sevier. On the map, they are called Nicollet, in honor of J. N. Nicollet, whose premature death interrupted the publication of the learned work on the physical geography of the basin of the Upper Mississippi, which five years of labor in the field had prepared him to give.

On the western side of the basin, and immediately within the first range of the Sierra Nevada, is the Pyramid Lake, receiving the water of Salmon Trout River. It is thirty-five miles long, between four and five thousand feet above the sea, surrounded by mountains, is remarkably deep and clear, and abounds with uncommonly large salmon trout. Southward, along the base of the Sierra Nevada, is a range of considerable lakes, formed by many large streams from the sierra. Lake Walker, the largest among these, affords great numbers of trout similar to those of the Pyramid Lake, and is a place of resort for Indians in the fishing season.

There are probably other collections of water not yet known. The number of small lakes is very great, many of them more or less salty, and all, like the rivers which feed them, changing their appearance and extent under the influence of the season, rising with the melting of the snows, sinking in the dry weather, and distinctly presenting their high- and low-water mark. These generally afford some fertile and well-watered land, capable of settlement.

Rivers of the Great Basin. The most considerable river in the interior of the Great Basin is the one called on the map Humboldt River, as the mountains at its head are called Humbolt Mountains—so called as a small mark of respect to the "Nestor of scientific travelers," who has done so much to illustrate North American geography, without leaving his name upon any one of its remarkable features. It is a river long known to hunters, and sometimes sketched on maps under the name of Mary's, or Ogden's, but now for the first time laid down with any precision. It is a very peculiar stream, and has many characteristics of an Asiatic river—the Jordan, for example, though twice as long—rising in mountains and losing itself in a lake of its own, after a long and solitary course. It rises in two streams in mountains west of the Great Salt Lake, which unite, after some fifty miles, and bears westwardly along the northern side of the basin toward the great Sierra Nevada, which it is destined never to reach, much less to pass. The mountains in which it rises are round and handsome in their outline, capped with snow the greater part of the year, well clothed with grass and wood, and abundant in water. The stream is a narrow line, without affluents, losing by absorption and evaporation as it goes, and terminating in a marshy lake, with low shores fringed with bulrushes, and whitened with saline encrustations. It has a moderate current, is from two to six feet deep in the dry season, and probably not fordable anywhere below the junction of the forks during the time of melting snows, when both lake and river are considerably enlarged. The country through which it passes (except its immediate valley) is a dry sandy plain, without grass, wood, or arable soil; from about 4,700 feet (at the forks) to 4,200 feet (at the lake) above the level of the sea, winding among broken ranges of mountains, and varying from a few miles to twenty in breadth. Its own immediate valley is a rich alluvion, beautifully covered with blue grass, herd grass, clover, and other nutritious grasses; and its course is marked through the plain by a line of willow and cottonwood trees, serving for fuel. The Indians in the fall set fire to the grass and destroy all trees except in low grounds near the water.

This river possesses qualities which, in the progress of events, may give it both value and fame. It lies on the line of travel to California and Oregon, and is the best route now known through the Great Basin, and the one traveled by emigrants. Its direction, nearly east and west, is the right course for that travel. It furnishes a level unobstructed way for nearly three hundred miles, and a continuous supply of the indispensable articles of water, wood, and grass. Its head is toward the Great Salt Lake, and consequently toward the Mormon settlement, which must become a point in the line of emigration to California and the Lower Columbia. Its

termination is within fifty miles of the base of the Sierra Nevada, and opposite the Salmon Trout River Pass—a pass only seven thousand two hundred feet above the level of the sea, and less than half that above the level of the basin, and leading into the valley of the Sacramento some forty miles north of Nueva Helvetia. These properties give to this river a prospective value in future communications with the Pacific Ocean, and the profile view on the north of the map shows the elevations of the present traveling route, of which it is a part, from the South Pass, in the Rocky Mountains, to the Bay of San Francisco.

The other principal rivers of the Great Basin are found on its circumference, collecting their waters from the snowy mountains which surround it, and are, 1. Bear River, on the east, rising in the massive range of the Timpanogos Mountains and falling into the Great Salt Lake, after a doubling course through a fertile and picturesque valley two hundred miles long. 2. The Utah River and Timpanaozu or Timpanogos, discharging themselves into the Utah Lake on the east, after gathering their copious streams in the adjoining parts of the Wasatch and Timpanogos mountains. 3. Nicollet River, rising south in the long range of the Wasatch Mountains, and falling into a lake of its own name, after making an arable and grassy valley, two hundred miles in length, through mountainous country. 4. Salmon Trout River, on the west, running down from the Sierra Nevada and falling into Pyramid Lake, after a course of about one hundred miles. From its source, about one-third of its valley is through a pine-timbered country, and for the remainder of the way through very rocky, naked ridges. It is remarkable for the abundance and excellence of its salmon trout, and presents some ground for cultivation. 5. Carson and Walker rivers, both handsome clear-water streams nearly one hundred miles long, coming, like the preceding, down the eastern flank of the Sierra Nevada and forming lakes of their own name at its base. They contain salmon trout and other fish, and form some large bottoms of good land. 6. Owens River, issuing from the Sierra Nevada on the south, is a large bold stream about one hundred and twenty miles long, gathering its waters in the Sierra Nevada, flowing to the southward, and forming a lake about fifteen miles long at the base of the mountain. At a medium stage it is generally four or five feet deep, in places fifteen, wooded with willow and cottonwood, and makes continuous bottoms of fertile land, at intervals rendered marshy by springs and small affluents from the mountain. The water of the lake in which it terminates has an unpleasant smell and bad taste, but around its shores are found small streams of pure water with good grass. On the map this has been called Owens River.

Besides these principal rivers issuing from the mountains on the cir-

cumference of the Great Basin, there are many others, all around, all obeying the general law of losing themselves in sands, or lakes, or belts of alluvion, and almost all of them an index to some arable land, with grass and wood.

Interior of the Great Basin. The interior of the Great Basin, so far as explored, is found to be a succession of sharp mountain ranges and naked plains, such as have been described. These ranges are isolated, presenting summit lines broken into many peaks, of which the highest are between ten and eleven thousand feet above the sea. They are thinly wooded with some varieties of pine (*Pinus monophyllus* characteristic), cedar, aspen, and a few other trees, and afford an excellent quality of bunch grass, equal to any found in the Rocky Mountains. Black-tailed deer and mountain sheep are frequent in these mountains; which, in consideration of their grass, water, and wood, and the alluvion at their base, may be called fertile, in the radical sense of the word, as signifying a capacity to produce, or bear, and in contradistinction to sterility. In this sense these interior mountains may be called fertile. Sterility, on the contrary, is the absolute characteristic of the valleys between the mountains—no wood, no water, no grass, the gloomy artemisia the prevailing shrub—no animals, except the hares, which shelter in these shrubs, and fleet and timid antelope, always on the watch for danger, and finding no place too dry and barren which gives it a wide horizon for its view and a clear field for its flight. No birds are seen in the plains, and few on the mountains. But few Indians are found, and those in the lowest state of human existence, living not even in communities, but in the elementary state of families, and sometimes a single individual to himself—except about the lakes stocked with fish, which become the property and resort of a small tribe. The abundance and excellence of the fish in most of these lakes is a characteristic; and the fishing season is to the Indians the happy season of the year.

Climate of the Great Basin. The climate of the Great Basin does not present the rigorous winter due to its elevation and mountainous structure. Observations made during the last expedition show that around the southern shores of the Salt Lake, latitude 40° 30′ to 41″ for two weeks of the month of October, 1845, from the 13th to the 27th, the mean temperature was 40° at sunrise, 70° at noon, and 54° at sunset—ranging at sunrise from 28° to 57°; at noon, from 62° to 76°; at four in the afternoon, from 58° to 69°; and at sunset, from 47° to 57°.

Until the middle of the month the weather remained fair and very pleasant. On the 15th, it began to rain in occasional showers, which whitened with snow the tops of the mountains on the southeast side of the lake valley. Flowers were in bloom during all the month. About the

18th, on one of the large islands in the south of the lake, helianthus, several species of aster, *Erodium cicutarium*, and several other plants were in fresh and full bloom; the grass of the second growth was coming up finely, and vegetation generally betokened the lengthened summer of the climate.

The 16th, 17th, and 18th, stormy with rain; heavy at night; peaks of the Bear River Range and tops of the mountains covered with snow. On the 18th, cleared with weather like that of late spring, and continued mild and clear until the end of the month, when the fine weather was again interrupted by a day or two of rain. No snow within 2,000 feet above the level of the valley.

Across the interior, between latitudes 41° and 38°, during the month of November (5th to 25th) the mean temperature was 29° at sunrise and 40° at sunset, ranging at noon (by detached observations) between 41° and 60°. There was a snowstorm between the 4th and 7th, the snow falling principally at night, and sun occasionally breaking out in the day. The lower hills and valleys were covered a few inches deep with snow, which the sun carried off in a few hours after the storm was over.

The weather then continued uninterruptedly open until the close of the year, without rain or snow, and during the remainder of November, generally clear and beautiful; nights and mornings calm, a light breeze during the day, and strong winds of very rare occurrence. Snow remained only on the peaks of the mountains.

On the western side of the basin, along the base of the Sierra Nevada, during two weeks from the 25th November to the 11th December, the mean temperature at sunrise was 11° and at sunset 34°, ranging at sunrise from zero to 21°, and at sunset from 23° to 44°. For ten consecutive days of the same period, the mean temperature at noon was 45°, ranging from 33° to 56°. The weather remained open, usually very clear, and the rivers were frozen.

The winter of '43-'44, within the basin, was remarkable for the same open, pleasant weather, rarely interrupted by rain or snow. In fact, there is nothing in the climate of this great interior region, elevated as it is, and surrounded and traversed by snowy mountains, to prevent civilized man from making it his home, and finding in its arable parts the means of a comfortable subsistence; and this the Mormons will probably soon prove in the parts about the Great Salt Lake. The progress of their settlement is already great. On the first of April of the present year, they had 3,000 acres in wheat, seven saw and grist mills, seven hundred houses in a fortified enclosure of sixty acres, stock, and other accompaniments of a flourishing settlement.

Such is the Great Basin, heretofore characterized as a desert, and in some respects meriting that appellation, but already demanding the qualification of great exceptions, and deserving the full examination of a thorough exploration.

The complete text of the geographical memoir may be found in Nevins, ed., *Narratives of Exploration and Adventure*, pp. 514-21.

APPENDIX C

REMINISCENCES OF WHITE MOUNTAIN EXPEDITION IN *AUTOBIOGRAPHY OF GEORGE WASHINGTON BEAN*

It was in March that President Young called on me to take a party and proceed into the Desert regions west of Fillmore and Beaver to find hiding places for the Saints in case Johnston's Army came in. All north of Utah Valley were to move everything of value except real estate and improvements and go south. Instructions were given to destroy homes rather than let the enemy take them. Straw was placed in houses and sentinels near.

Our party started out the middle of March through deep snow, which hampered our progress, through Juab County to Chicken Creek where we found good feed and bare ground. We went to Holden and across Sevier River where we joined with other men and teams on the same errand. On top of the West Mountain range on April 8th, we faced the roughest snowstorm that it was ever my lot to meet. We got into any shelter possible and waited all the rest of the day and night—twenty-seven hours of snow without cessation, and heavy wind most of the time. We lost five horses, had wagon covers torn to strips, cattle driven before the storm for forty miles and some of the brethren dug holes in the ground to shelter and save themselves.

It seemed that an opposing power had got into our path trying to prevent our further progress. However, in two or three days we got things together and moved on, and in a week reached the foot of the White Mountains, and soon located one resting place on Snake Creek, where the brethren put in fifty or sixty acres of grain. Meanwhile, myself and others pushed west and south toward the Pahranegat Valley outside of the Great Basin.

We explored a cave for the first time in this generation. It was over a mile in extent, and about midway of the distance we passed through a low narrow passage and then into a large room two hundred feet wide and twenty to thirty feet high. A spring of clear water gave off a stream about 100 yards in length, running in a fine clay bed which was filled with thousands of barefoot human tracks; and on close examination, we found that great quantities of clay had been carried out. In this narrow opening and a little elevated, there was a great amount of ashes, showing that fires had frequently been maintained there for the burning or removal of clay or its products. We found the clay of most excellent quality for potter's ware and made some tests from the clay I carried to Roberts, our Provo potter. Fires had also been kept at various angles of the eight hundred yards from the mouth of the Cave to the spring. By inquiry of the Native Indians nearby, we learned that all such, as making of pottery, mounds, inscrip-

tions on rocks, and the like, were done by the Tribe of Moquis, in ages past. Indeed all advanced evidences of industry are credited to that people, who were the old settlers of this mountain region.

While engaged in these explorations, we fell in with President W. H. Dame and party from Parowan; Walkers, Haslams, Day and others from Cedar City; James Low, Mathews and others from Beaver; all out for the same purpose, by which means we became well acquainted with south-east Nevada, but it was left for others to discover the rich mines of Pioche and Frisco later.

During this time our staunch friend, Col. Thomas L. Kane, was again standing by the "Mormons". His heart was first touched when he visited the deserted City of Nauvoo, and heard the boasts of mobs who were desecrating the lovely homes and sacred Temple we had left. Then again at Council Bluffs when the Mormon Battalion was mustered in and began their march as soldiers of our United States against Mexico. There he learned the spirit of Brigham Young and the Mormons, and now they need him to intercede in protection of their Territorial rights, and he is here among us. He traveled not as Col. Kane, but incognito as "Dr. Osborne" from New York, over Panama, to San Bernardino, into Utah, where he met old acquaintances. After a conference with President Young and others, he went out to Fort Scott to appeal to General Albert Sidney Johnston, and bring the new Governor of the Territory, Alfred Cumming, into his place among the people, to see conditions for himself.

Well, when we returned June 7th, the people had gone to southern settlements, Governor Cumming was here, Col. Kane had hurried back to Washington, and the two Peace Commissioners he asked from President Buchanan, Gov. Powell and Ben McCullock, had arrived, and now we were all "forgiven" of rebellion, treason, arson, and other crimes we had not committed, when truth prevailed.

General Albert Sidney Johnston and his army were permitted to march through the City on Brigham Street to Jordan River and south to Cedar Valley, where they located "Camp Floyd", just west of Utah Lake, and peace was established. The two Peace Commissioners, Governor Powell of Kentucky, and Ben McCullough of Texas, had to come to Provo to find President Young and the other officials who moved south; however, the terms were agreed upon, the soldiers located and the people began to move back home.

Flora Diana Bean Horne, comp., *Autobiography of George Washington Bean, pp. 132-35.*

APPENDIX D

CHIEF CHARACTERISTICS OF GREAT BASIN AS DESCRIBED BY JAMES H. SIMPSON IN HIS *THE SHORTEST ROUTE TO CALIFORNIA* (1869), PAGES 35-55

The first thing which will strike one, on looking at the map, is the great number of mountain ranges which the routes cross in the Great Basin. This will appear the more remarkable, as the idea has been generally entertained, since the explorations of Frémont in 1843 and 1844 (though, as before remarked, he corrected the error on his succeeding expedition), that this Great Basin was a *flat country scattered over with a system of small lakes and rivers*, and destitute of mountains. The fact, on the contrary, is that it is probably the most mountainous region, considering its extent, within the limits of our country, and so far from being scattered over with a system of small lakes and rivers, which seems to imply a considerable number of this kind of water area, it has but a limited number of lakes, and they almost entirely confined to the bases of the great Sierras which bound the Basin.

These lakes are—proceeding from north to south, and around the circumference of the Great Basin—Great Salt Lake, Lake Utah, Sevier Lake, and Small Salt Lake, on the eastern side of the Basin; and on the west, proceeding *from south to north*, Owen's Lake, Mono Lake, Walker's Lake, the two Carson Lakes, Humboldt Lake, Pyramid Lake, the Mud Lakes, and Lake Abert. Besides these, there are Franklin Lake and Goshoot Lake, *to the east of* the East Humboldt Range. These constitute all the

The principal rivers which, on account of their width and depth, require bridging or ferry in their flush state, during the time of melting snow, are the Bear, Weber, Roseaux or Malade, Jordan, Timpanogos, Spanish Fork, and Sevier Rivers, which have their sources in the Wasatch Mountains, on the east side of the Basin, and flow into lakes near the base of these mountains; the Mojave, Owen's, Walker's, Carson, and Truckee or Salmon Trout, which have their sources in the Sierra Nevada, and flow into lakes at

[illegible] have been discovered in the Great Basin, [illegible] they are all without outlet. Great Salt Lake is [illegible]enty miles long and from twenty to thirty broad; Pyramid and Walker's Lakes, the next largest, are both about thirty miles long by ten wide; all the others are smaller. Pyramid Lake, Walker's Lake, and Utah Lake, which are all fresh-water lakes, abound in fine large trout.

their base and sink; and the Humboldt River, which flows from east to south of west along the northern portion of the Basin and sinks. The longest of these is the Humboldt, about three hundred miles long, and the next longest Bear River, about two hundred and fifty miles long. The others vary from forty to one hundred and twenty miles in length. In width they vary from about fifty to one hundred and fifty feet, and in depth from two to fifteen feet, depending upon the season and locality.

All the other streams are of small extent, and, taking their rise in the many mountain ranges by which the Basin is traversed, generally from north to south, they seldom flow beyond their bases, where in the alluvion they sink. These streams are usually so small that one can jump across them, and seldom require bridging. The large as well as the small streams mentioned, when not brackish, not unfrequently contain trout. One of these small streams is *Reese* River, called so by Captain Simpson after his chief guide. This river has since become famous on account of the rich silver-bearing rocks with which its valley is characterized, and its being also the site of the city of Austin, which so suddenly sprang into existence after the discovery of the precious metal.

The trend of the mountain ranges is almost invariably north and south, the limits of variation being between the true and the magnetic north. The mountains rise quite abruptly from the plains, and form bases varying in breadth from a few miles to about twelve. These mountain ranges are so frequent and close together as to make the areas between them more like valleys than plains. In cross section the valleys are slightly concave; and Captain Simpson in his survey crossed them, in a direction of south of west, on the average every ten or fifteen miles. In length they are commensurate with the mountain ranges. Longitudinally, or in a general direction north and south, they are nearly level.

The most massive and lofty mountains, commencing at Camp Floyd and proceeding westward, are the O-quirr, Guyot, Goshoot or Tots-arr, Un-go-we-ah, Mon-tim, Humboldt, We-ah-bah, Pe-er-re-ah, and Se-day-e ranges. Of these the Tots-arr, Un-go-we-ah, Humboldt, Pe-er-re-ah, and Se-day-e are the most massive and lofty. The lengths of the ranges in some instances were at least one hundred and twenty miles, and they then extended into unknown regions beyond the field of Captain Simpson's explorations. These ranges attain in the case of Union Peak (so called by Captain Simpson), the highest point of the Tots-arr or Goshoot Range, an altitude above the plain of from five thousand to six thousand feet, or of from ten thousand to eleven thousand feet above the sea. In the case of the O-quirr Range, the highest point (Camp

Floyd Peak), according to Lieutenant Putman's measurement, by theodolite, was found to be four thousand two hundred and fourteen feet above the camp at its foot; and as this locality, by barometric measurement, is four thousand eight hundred and sixty feet above the sea, the peak referred to is nine thousand and seventy-four feet above the sea. The *highest pass* was on Captain Simpson's return route, and through the Un-go-we-ha Range. By barometric measurement it was eight thousand one hundred and forty feet above the sea. The passes are all, with but little difficulty, surmountable by wagons; but their barometrical profiles show that they are too steep for railroad purposes. These barometrical profiles of Captain Simpson, to which the Union Pacific Railroad Company have had access, have already been of very material service in obviating the great expense of [illegible] survey, to which the company would otherwise have been obliged to resort.

[illegible] *agricultural characteristic of the country* [illegible]ert, the exceptions being as follows: [illegible]son's more northern route, in the case of the *large valleys between the mountain ranges* and going westward from Camp Floyd—Rush Valley, Pleasant Valley (the valley of Fish or Deep Creek, not on the route but in the vicinity of Pleasant Valley), Ruby Valley, Walker's Valley, and Carson Valley. All these are cultivable in limited portions. And on his return route, going eastward from Genoa, Carson Valley (common to outward route), Steptoe Valley, Antelope Valley, and Crosman Valley. The altitude of these valleys above the sea varies from three thousand eight hundred and forty feet, the lowest depression of Carson Valley, to six thousand one hundred and forty-six feet, the altitude of Steptoe Valley. Carson Valley has already shown its capacity to grow the small cereals and garden vegetables; and we doubt not the other valleys named, though higher in altitude, will be found sufficiently warm to mature the growth of the more hardy cereals and plants. Captain Simpson's return or more southern route, though about thirty miles longer, is much the best in respect to cultivable valleys and grass.

The other exceptions to the desert character of the Basin are the *small narrow valleys and ravines* of the mountain streams, which, taking their rise high up in the mountains, course down to the plains or main valleys and sink. These valleys, though rich, are generally too high above the sea, and therefore too cold, for arable purposes; but are valuable as furnishing in great abundance the small mountain bunch-grass, which has fattening qualities almost if not quite equal to those of oats.

Another exception to the universal characteristic of desert is *the abundance of the dwarf cedar*, which is to be seen on almost every one of the mountain ridges, and which high up in the mountains is not unfrequently intermingled with the *pine* and *mountain mahogany*. The abundance of this cedar, as well as occasional supply of other kinds of timber, has made Captain Simpson's routes, independent of their being the shortest across the Great Basin, decidedly the most practicable for the overland telegraph.

The portion of the country traversed which may be called *unqualifiedly desert* is, on his *more northern* route, the region between Simpson's Springs in the Champlin Mountains, and the Sulphur Springs at the east base of the Toi-yarr or Goshoot Range, a distance of eighty miles; albeit the grass and water at Fish Springs intervene, to make the greatest distance between water and grass forty-eight and a half miles; between the west base of the Se-day-e Mountains and Carson Lake, a distance of fifty miles; and between Carson Lake and Walker's River, a distance of twenty-one miles. On Captain Simpson's *return* or *more southern route*, between Carson River and Carson Lake, a distance of twenty-three miles; and between the Perry range and the Champlin Mountains, a distance of one hundred and three miles; though Chapin's Springs and Tyler Spring, with their limited pasture-ground, and the Good Indian Spring, with its small supply of water but abundance of grass, within this interval alleviate in a very material degree this last stretch and take it out of the category of *continuously* unmitigated desert.

In relation to the propriety of the term, Great Basin, being applied to this region of country, we remark, that if by it the idea is conveyed that this great area is chiefly one of a hydrographic character,—that is, filled with lakes and rivers,—it is so far a misnomer. Erroneous also is the idea that because it is called a *Basin* it must, as a whole, present a generally *concave* surface. The truth is, it is only a Basin inasmuch as the few lakes and streams that are found within it *sink* and *have no outlet to the sea*.

It may also be considered as made up of several *minor or subsidiary basins;* and, regarding them in succession, not in the order of magnitude, we have—

1st. Lake Sevier Basin. Elevation of lowest point above the sea, slightly less than 4630 feet.

2d. Great Salt Lake Basin. Elevation of lowest point above the sea, 4170 feet.

3d. Humboldt River Basin. Elevation of lowest point above the sea, near (Beckworth) Lassen's Meadows, 4147 feet.

4th. Carson River Basin. Elevation of lowest point above the sea, at Carson Lake, 3840 feet.

5th. Walker's River Basin. Elevation of lowest point above the sea, seven miles above Walker's Lake, 4072 feet.

(Walker's Lake Basin, estimated at about same as Carson), 3840 feet.

6th. Owen's Lake Basin. Altitude unknown.

7th. Mojave River Basin. Elevation of lowest point above the sea (Williamson), 1111 feet.

All these valleys or basins, it will be noticed, are on the *outskirts* of the Great Basin, just within its circumference; and as the valleys of the *great central* [illegible] have an average altitude of about five thousand five hundred feet, which is for much the larger portion of the area about fifteen hundred feet higher than said basin, and for the Mojave portion over four thousand feet higher, it will at once be apparent that, as a whole, the Basin should be conceived as an elevated central region extended over much the greater portion, and, in proximity to the circumference, sloping toward the sub-basins bordering the circumference. When this idea is entertained, and this extended *central portion* is in addition conceived of as being traversed by high and extensive ranges of mountains, on an average about fifteen miles apart, ranging north and south and forming intermediate valleys of commensurate lengths; bearing in mind at the same time that the order of depression of the basins is from Lake Sevier, where it is least, around successively by Great Salt Lake, Humboldt River Valley, Carson Lake, Walker's Lake, to the valley of the Mojave, where it is much the greatest; a very good mental daguerreotype can be had of the Great Basin inside of its inclosing mountains. From this description we think it will be obvious that while the so-called Great Basin is in some small degree a Basin of lakes and streams, *it is pre-eminently a Basin of mountains and valleys!*

In regard to the geological character of the mountains within the Great Basin, Captain Simpson's explorations show that from Camp Floyd west, as far as about Kobeh Valley, those of carboniferous origin predominate; though over the desert proper, between [illegible]n's Springs and the Tots-arr Range, the igneous are a characteristic, and near the Humboldt Range those of the Devonian age obtain. From Kobeh Valley to the Sierra Nevada the ranges are almost exclusively of igneous origin, and present few indications of stratified rocks. The knowledge, geologically, of this extensive *terra incognita*, for the first time given to the government in the reports of Captain Simpson's assistant, Mr. Engelmann, and by Mr. Meek, the palæontologist, is an interesting result of the expedition, and goes far to fill up the gap that remained to complete the geological profile of our country from the Atlantic to the Pacific, on the line of Captain Simpson's explorations. These reports not only discuss the geology and palæontology of the Great Basin, but also *of the whole route through from Fort Leavenworth to the Sierra Nevada*; and to no two

geologists probably could the work have been better assigned, since Mr. Engelmann, independent of his scientific and practical ability, was the geologist of Lieutenant Bryan's expedition to the Rocky Mountains in 1856, and of Captain Simpson's expedition, from Fort Leavenworth to the Sierra Nevada and back, in 1858 and 1859; and Mr. Meek's well-earned reputation certainly pointed him out as the most capable person to whom to refer the palæontological discoveries of the expedition. In this connection it may be also proper to state that Mr. Engelmann, in his sub-reports, has devoted a great deal of space to the discussion of the *meteorological phenomena* of the Great Basin, and, illustrating as he does his views by accompanying diagrams, his report will prove of great value to science in this particular.

With regard to the *Indians* of the Great Basin, Dr. Garland Hurt, the intelligent and brave Indian agent in Utah during the Mormon difficulty in 1857, 1858, and 1859, and the only civil officer connected with the general government whom the Mormons could not drive out of their Territory, has furnished Captain Simpson with a very interesting memoir. From this memoir it appears that the Indians of the Great Basin, including those of the valleys of Green and Grand Rivers, consist of two tribes; the *Ute* and the *Sho-sho-nes* or *Snakes*.

The *Ute* tribe Dr. Hurt divides into the *Pah-Utahs*, *Tamp-Pah-Utes*, *Cheveriches*, *Pah-Vants*, *San-Pitches*, and *Py-edes*.

The *Utahs* proper inhabit the waters of Green River, south of Green River Mountains, the Grand River and its tributaries, and as far south as the Navajo country. They also claim the country bordering on Utah Lake, and as far south as the Sevier Lake. They are a brave race, and subsist principally by hunting. The buffalo having left their country and gone east over the Rocky Mountains, their hunting this game in the country of the Arrapahoes and Cheyennes brings them in continual conflict with those tribes. Dr. Hurt says it is his opinion, from a familiar acquaintance with them, that there is not a braver tribe to be found among the aborigines of America than the Utahs, none warmer in their attachments, less relenting in their hatred, or more capable of treachery. Their chief in 185[illegible] was *Arrapene*, the successor of the renowned *Wacca*, sometimes erroneously called Walker. Some of the superior bands, both of the Snakes and Utahs, are [illegible] always in a state of starvation, and are compelled to resort to small animals, roots, grass-seed, and insects for subsistence. The general government has opened farms for these Indians in the valleys of the Spanish Fork and San Pete.

The *Pah-vants* occupy the Corn Creek, Paravan, and Beaver Valleys, and the valley of Sevier. On

Corn Creek they have a farm under the supervision of the general government. It was a portion of this tribe that is reported to have massacred Captain Gunnison and a number of his party in 1858; though Mr. J. Forney, Superintendent of Indians in Utah, in his report of September 29, 1859, fixes the stigma of this horrible outrage on the Mormons.

The *Py-edes* live adjoining the Pah-vants, down to the Santa Clara, and are represented as the most timid and dejected of all the Utah bands. They barter their children to the Utes proper for a few trinkets or bits of clothing, by whom they are again sold to the Navajos for blankets, etc. They indulge in a rude kind of agriculture, which they probably derived from the old Spanish Jesuits. Their productions are corn, beans, and squashes. The Mountain Meadow massacre is ascribed by the Mormons to them; but, as Dr. Hurt justly remarks, "any one at all acquainted with them must perceive at once how utterly absurd and impossible it is for such a report to be true."

The *Sho-sho-nes* Dr. Hurt divides into Snakes, Bannacks, To-si-witches, Go-sha-utes, and Cum-um-pahs, though he afterward classes the last two divisions [illegible] races between the Sho-sho-nes and the [illegible].

The *Snakes* are fierce and warlike in their habits, and inhabit the country bordering on Snake River, Bear River, Green River, and as far east as Wind River. They are well supplied with horses and firearms, and subsist principally by hunting. They are the enemies of the Crows and Blackfeet, on account of the buffalo having disappeared from their country west of the Rocky Mountains, and their being obliged to hunt them as trespassers on the territory of these tribes east of the mountains. They have also been at war with the Utes for several generations. They, however, profess friendship for the

* Mr. J. Forney, Superintendent of Indian Affairs in Utah, classes and numbers the various tribes and bands of Indians in Utah as follows:

"Sho-sho-nes, or Snakes	4,500
Bannacks	500
Uinta Utes	1,000
Spanish Fork and San Pete farms	900
Pah-vant (Utes)	700
Pey-utes (South)	2,200
Pey-utes (West)	6,000
Elk Mountain Utes	2,000
Washoe of Honey Lake	700
	18,500

"The Sho-sho-nes claim the northeastern portion of the territory for about four hundred miles west and from one hundred to one hundred and twenty-five miles south from the Oregon line. The Utes claim the balance of the territory." (Pres. Mes. and Doc., 1859–60, Part I.)

whites; and it is their boast that under the Wash-i-kee, the blood of the white man has stained their soil. It is certain, nevertheless, small parties of this band, living in Box Elder county, with some Bannack Indians from Oregon, robbed, during the season of 1859, three parties of emigrants on the emigration roads to the north and east of Great Salt Lake, and killed ten or twelve of their number.

The *Bannacks* inhabit the southern borders of Oregon, along the old Humboldt River emigrant road, and have the reputation of infesting that portion of the route, and of being of a very thievish, treacherous character.

The *Tis-sa-witches*, or *White Knives*, inhabit the region along the Humboldt River, and, according to Dr. Hurt, have the reputation of being very treacherous; though we believe they have proved quite friendly of late years. Captain Simpson met them ranging in small parties between the Un-go-we-ah Range and Cooper's Range on his more southern route.

The *Go-shoots* Dr. Hurt classes among the Sho-shones; but according to Mr. George W. Bean, Captain Simpson's guide in the fall of 1858, who has lived in Utah ever since the Mormons entered this region, and has been frequently employed as interpreter among the Indians, they are the offspring of a disaffected portion of the Ute tribe that left their nation, about two generations ago, under their leader or chief, Go-ship, whence their name Go-ship-utes, since contracted into Go-shutes. Captain Simpson is disposed to believe that they are thus derived, from the fact that he noticed among them several Utes, who, while claiming that they belonged to the Utes proper, had intermarried with the Go-shoots and were living among them.

These Go-shoots are few in number, not more, probably, than two or three hundred, and reside principally in the grassy valleys west of Great Salt Lake, along and in the vicinity of Captain Simpson's routes, as far as the Un-go-we-ah Range.

In addition to the Indians just mentioned as inhabiting the Great Basin, should be mentioned the *Py-ute* and the *Washoe* tribes, which, not being within Dr. Hurt's jurisdiction, were not included by him.

The Py-utes, according to Major Dodge, their Indian agent in 1859, numbered at that date between six thousand and seven thousand souls. They inhabit Western Utah, from Oregon to New Mexico; their locations being generally in the vicinity of the principal rivers and lakes of the Great Basin, viz., Humboldt, Carson, Walker, Truckee, Owen's, Pyramid, and Mono. They resemble in appearance, manners, and customs the Delawares on our Missouri frontier, and with judicious management, and assistance

from government, would in three years equal them in agriculture. Their chief in 1859 was Won-a-muc-ca (the Giver), and it was a portion of this tribe, under this chief, who had been engaged just previously in the massacres in Western Utah. Their language resembles in some words the Sho-sho-ne, but it differs so much from it that Captain Simpson's Ute Pete, who spoke both Ute and Sho-sho-ne, could not understand them. This tribe is frequently confounded with the Pah-utes, with which they show only a distant affinity.

The *Washoes*, according to Major Dodge, numbered in 1859 about nine hundred souls, and inhabit the country along the eastern slope of the Sierra Nevada, from Honey Lake, on the north, to the Clara, the west branch of Walker's River, a distance of one hundred and fifty miles. They are not inclined to agricultural pursuits, nor any other advancement toward civilization. They are destitute of all the necessaries to make life even desirable. In 1859 there was not one horse, pony, or mule in the nation. They are peaceable, but indolent. In the summer they wander around the shores of Lake Bigler, in the Sierra Nevada, principally subsisting on fish. In the winter they lie around in the *artemisia* (wild sage) of their different localities, subsisting on a little grass-seed. The Indian vocabulary appended to Captain Simpson's report shows that they are a distinct tribe, and in no way assimilate with the Utes, Sho-sho-nes, or Py-utes.

The Indians all along Captain Simpson's routes, from Great Salt Lake to Carson River, are of the very lowest type of mankind, and forcibly illustrate the truth which the great physicist of our country, Professor Arnold Guyot, of the College of New Jersey, has brought out so significantly in his admirable work, "The Earth and Man," to wit, *that the contour, relief, and relative position of the crust of the earth are intimately connected with the development of man.* These Indians live in a barren, and in winter, on account of its altitude, a cold, climate; and the consequence is that they are obliged to live entirely on rabbits, rats, lizards, snakes, insects, rushes, roots, grass-seed, etc. They are more filthy than beasts, and live in habitations which, summer and winter, are nothing more than circular inclosures, about four feet high, without roof, made of the *artemisia* or sage bush, or branches of the cedar, thrown around on the circumference of a circle, and which serve only to break off the wind. As the temperature in the winter must at times be as low as zero, and there must fall a good deal of snow, it will readily be perceived that they must suffer considerably. Anything like a covered lodge, or *wick-e-up* of any sort, to protect them from the rain, cold, or snow, Captain Simpson did not see among them. Their dress, summer and winter, is a rabbit-skin tunic or cape, which comes down to just

below the knee; and seldom have they leggins or moccasins. The children at the breast were perfectly naked, and this at a time when overcoats were required by Captain Simpson's party. The women frequently appeared naked down to the waist, and seemed unconscious of any immodesty in thus exposing themselves.

The fear of capture causes these people to live some distance from the water, which they bring in a sort of jug made of willow tightly platted together and smeared with fir-gum. They also make their bowls and seed and root baskets in the same way; a species of manufacture quite common among all the Indian tribes, and which Captain Simpson saw in his Explorations of 1849, in the greatest perfection, among the Navajos and Pueblo Indians of New Mexico.

Captain Simpson describes, in his report, a visit to one of their *kauts*, as they call their habitations, as follows:

"Just at sunset, I walked out with Mr. Faust to see some of these Go-shoots at home. We found, about one and a half miles from camp, one of their habitations, which consisted only of some cedar branches disposed around the periphery of a circle about ten feet in diameter, and in such a manner as to break off, to the height of about four feet, the wind from the prevailing direction. In this inclosure were a number of men, women, and children. Rabbit-skins were the clothing generally; the poor infant at the breast having nothing on it. In the center was a brass kettle, suspended to a three-legged crotch or tripod. In this they were boiling the meat we had given them. An old woman superintended the cooking, and at the same time was engaged in dressing an antelope-skin. When the soup was done, the fingers of each of the inmates were stuck into the pot and sucked. While this was going on, an Indian, entirely naked with the exception of his breech-cloth, came in from his day's hunt. His largest game was the rat, of which he had quite a number stuck around under the girdle about his waist. These he threw down, and they were soon put by the old woman on the fire and the hair scorched. This done, she rubbed off the crisped hair with a pine knot, and then, thrusting her finger into the paunch of the animal, pulled out the entrails. From these pressing out the offal, she threw the animals, entrails and all, without further cleaning, into the pot."

Mr. Reese, Captain Simpson's guide, avers that he has seen them roast their rats without in any way cleaning them, and then eat them with great relish.

The rats are caught by a dead-fall, made of a heavy stone and supported by a kind of figure 4. They are also speared in their holes by a stick, turned up slightly at the end and pointed; and with another of spade-form at the end, the earth is dug away until the animal is reached and taken.

The Go-shoots, as well as the Diggers, constantly carry about with them these instruments, which, with the bow and arrow and net, constitute their chief means for the capture of game. The nets, made of excellent twine fabricated of a species of flax which grows in certain localities in this region, are three feet wide and of very considerable length. With this kind of net they catch the rabbit, as follows. A fence or barrier made of the wild-sage bush plucked up by the roots, or cedar-branches, is laid across the paths of the rabbits, and on this fence the nets is hung vertically. The rabbits are then driven from their lairs, and, in running along their usual paths, are intercepted by the net and caught in its meshes.

The only large game they have is the antelope, and this they are seldom able to kill. Their mode of taking him is as follows. They make a sort of trap inclosure of a V-shape, formed by two fences of indefinite lengths, composed of cedar-branches, and converging from a wide open mouth to a point. Within the inclosure and near the vertex of the angle a hole is dug, and in this the Indian secretes himself with his bow and arrow. The antelope, being driven into the mouth of the trap, is naturally directed by the fence on either side to make his escape at the angle. Reaching this point, the Indian, whom he has just passed, pops up from his hiding-place and shoots him.

Their mode of starting a fire is certainly very primitive, and is described in Captain Simpson's journal of June 3d, as follows:

"On reaching our camping-place, which I call the Middle Gate, I saw a naked Indian stretched out on the rocks on an inclination of about twenty degrees. He was so much the color of the rocks, that he escaped our notice till we were right upon him. On being aroused, he looked a little astonished to see so many armed white men about him, but soon felt assured of his safety by our kind treatment. He seemed particularly pleased when he saw the long string of white-topped wagons coming in, and laughed outright for joy. I counted twenty-seven rats and one lizard lying about him, which he had killed for food. He had with him his appliances for making fire. They consisted simply of a piece of hard 'grease-wood' (so called) about two feet long, and of the size or smaller than one's little finger, in cross-section. This was rounded at the butt. Then a second flat piece of the same kind of wood, six inches long by one broad and one-half thick. This second piece had a number of semispherical cavities on one face of it. With this laid on the ground, the cavities uppermost, he placed the other stick between the palms of his hands, and with one end of the latter in the cavity, and holding the stick in a vertical position, he would roll it rapid

rward and back till the friction would cause the tinder, which he had placed against the foot of the stick in the cavity, to ignite. In this way I saw him produce fire in a few seconds."

As illustrative of the character of these Indians, and the kind of country to which they attach the most value, the writer gives one more extract from his journal of May 27:

"An old Digger Indian has visited our camp, and represents that we are the first white persons he has ever seen. He says there are a large number of Indians living around, but they have run away from fear of us. I asked him why he had not been afraid. He said he was so old, that it was of no consequence if he did die. I told him to say to them that we would be always glad to see them, and whenever they saw a white man, always to approach him in a friendly way, and they would not be hurt. He has been round eating at the different messes, and at length had so gorged himself as to be unable to eat more, until he had disgorged, when he went aro[illegible]d again to renew the pleasure.

"I showed him my watch, the works of which he looked upon with a great deal of wonder. He said he would believe what I told him about the magnetic telegraph, the next time he was told it. He is at least sixty years old, and says he has never had a chief. I asked him if his country was a good one. He said it was; he liked it a good deal better than any other. I asked him why. Because, he said, it had a great many rats. I asked him if they ever quarreled about their rat country. He said they did. So it would appear that civilized nations are not the only people who go to war about their domain."

APPENDIX E

OBSERVATIONS ON NEVADA INDIAN TRIBES BY GEORGE M. WHEELER IN 1869

All the Indians through Southern Nevada may be termed "Mountain Indians," in contradistinction to those that inhabit the valleys or plains, or live along the ocean-shore. The habits, dispositions, and mental characteristics of all the Indians that I have encountered on the Pacific Slope seem to be governed largely by the topography of the country and the principal articles used as food, the latter undoubtedly having the greater effect.

The mountain Indians are more hardy, intelligent, shrewd, and cunning, generally going into the valleys to plant and harvest, returning to their mountain-retreats after gathering their slender crops. They make up the deficit in food from nuts and acorns, rarely eating roots. The well-known Digger Indians of the California valleys formerly subsisted in the main upon roots and plants, and to them pine-nuts and acorns were a great luxury. They were and are a filthy, sluggish-minded, disgusting race. Certain other shore Indians, closely allied in general worthlessness of character to the Diggers, subsist upon fish and any refuse or offal found along the shore, together with seaweed and various sea-roots and plants. They inhabit the northern coasts of California and Oregon.

The mountain Indians of Nevada and Idaho, as a general rule, have been endowed by nature with more of the civilized instincts than those found below the Colorado River; and, in fact, it is not unlikely that a provisional latitudinal distinction, modified by the form and extent of the drainage basins, may be made general in its application to all tribes west of the Rocky Mountains.

With the development and population of countries like Arizona, the Indian will become impressed with the fact that warlike aggression or resistance will be futile; and the submissive Apache of a few years hence will be found to differ but little from the tame Ute and Pah-Ute of today.

Our guide and interpreter, Henry Butterfield, a thorough master of the Shoshone and Gosiute tongues, succeeded in gaining a pretty accurate census of the "wickeups" at which the Indians were found at home. His estimate of those enumerated was very nearly two thousand five hunderd; and it is not unsafe to suppose that at least this number are permanent inhabitants of the area surveyed.

THE SHOSHONES.

This tribe has ranged along the Humboldt for years, branching out here and there to the south and east, and at other points to the north and west, but looking to the valley of the Humboldt as their base. They are quite numerous, and consist of as many as 5,000, all told. Their headquarters is near Winnemucca, named after their old chief, still living. But few of these fellows were seen. Their habits and appearance are well known, as they can be noticed at any station along the railroad, from Humboldt Wells to Wadsworth. They extend as far to the south as Tim-pah-ute Mountain, and to the east as Ruby Valley. A party of some two hundred Indians, under the leadership of a chief named Blackhawk, were tilling the land in Snake Valley, and professed to be Snakes or Shoshones; wished to be peaceable, and to receive agricultural implements. The chief, thinking he might effect something of this sort, returned with our party to the camp in Cave Valley, and then went into Hamilton to see the superintendent of Indian affairs.

GOSIUTES.

This is not a numerous tribe, consisting of not more than 400, with headquarters at Deep Creek. They range no farther to the south than 38° latitude, nor to the east than Sevier Lake Desert, confining themselves mainly to the mountains bordering on Spring, Steptoe, Sierra, and Gosiute Valleys. They differ in no material way from the Shoshones, the language being similar, and habits and dispositions the same, always having lived at peace with each other.

Our first guide, Pogo, was a young buck taken from this tribe, who accompanied us as far as Patterson District. He was lazy and good-natured, possessed of more than ordinary Indian intelligence, and perfectly happy while with us, since he was all the time well supplied with provisions.

The Indian names of the different peaks, ranges, and natural objects have been changed when possible to their English signification, since few of the former possess a claim even to euphony.

Big Horse is the name of the chief of the Gosiutes, and he, with quite a band, was at Deep Creek, to the north of the Snake range, and above our line of travel. Freshly deserted Indian camps showed that they had fled at our approach, and we were told by white settlers that they held the soldiers in the greatest awe and reverence.

THE PAHVANTS

are quite a numerous tribe, living entirely in Utah, and to the south and east of the Sevier Lake Desert. Cutting across the Mormon settlements, in a northeasterly direction, we did not come immediately in contact with any of their wick-e-ups, but our guide, Adabe, who went with us from Cave Valley to Preuss Valley and return, sighted the smoke of some of their camps, and paid them a visit on our behalf. They did not seem desirous of a close acquaintance with the soldiers. Their chief, Blackhawk, is a shrewd and warlike old fellow, and when the Mormons will not give him and his band all the meat that they wish, he immediately retires to the hills, declares war, and levies contributions. I am told that in physical structure they are superior to most of the Indians of the great interior basin, approaching the athletic qualities of the Mojaves. It is likely that this statement should be taken with some caution.

Their language is not understood by either the Snakes, Shoshones, or Gosiutes, the latter supposed to be branches of the great Snake tribe.

UTES OR PIEDES.

The Utes, Utahs, or Piedes, as they have sometimes been called, are a roving, treacherous Indian. They are found from Pahranagat Valley to the mouth of the Virgin River as the most westerly line of their country, extending to the north and east along the different lines of Mormon settlements as high up as 38° north latitude, thence stretching out to the eastward as far as the Grand River, and bounded on the south and east by the Colorado proper.

Their number, all told, is variously estimated from three to five thousand; some six or seven hundred were found along our route.

An old fellow by the name of Toshob was chief of these bands on the Muddy; a wily, treacher-
cold-blooded old scamp, who was well known to have been the leader of the Indians that were
gaged in the "Mountain Meadow massacre," that horrible murder of helpless emigrants, both male and female, old and young. The details of this dreadful occurrence were gleaned here and there, and, when fully known, for all coming history will stand out as one of the most disgusting pictures of human baseness.

The Utes or Piedes cultivate the soil, are at war with no particular tribe, and, excepting the fact that they are great thieves, and treacherous to a heightened degree, even for an Indian, do not differ greatly from others of these mountain tribes. They have no hesitation to rob, plunder, and murder, provided they are not found out, while their sagacity teaches them the advantages to be gained from the reputation of "good Indians." They have a most wonderful antipathy against Germans, whom they can tell at a glance, and no one of this nationality can get past their habitations without a good chance of losing everything he has in the way of personal effects. I know of no manner in which to explain the above except that this tribe has been for long years at enmity with the Navajoes, who have been in the habit of crossing the Colorado and making inroads upon the Utes and Piedes, taking their stock, squaws, or anything else, and then beating a hasty retreat. It is a legend among these Indians that the Navajoes at one time captured a large German emigrant-train, killing all the men and taking the women to their villages, and thereby created a changed race of bad blood, they say; and possibly in their own minds they think that all their troubles with the Navajoes have arisen in consequence. These Utes or Piedes had killed two men in a cañon lead-

ing into one that we traversed from Meadow Valley to the Muddy settlements. These were travelers with good horses. The Indians who were supposed to have been concerned had left their wick-e-ups and fled.

PAH-UTES.

The Pah-Utes, or Water-Utes, are a tribe not differing in any marked way from the Utes, and, like them, of strong physical build, a lively, bright, black eye, rather thin front face and more aquiline contour, bespeaking acuter mental characteristics than most of the Indians of the great mountain basin. Their eastern limit is the western one of the Utes or Piedes; the Colorado bounds them on the south, and to the north and west, the Great Death Valley of Southwestern Nevada, that almost extends to and joins Death Valley proper in California. We found their wick-e-up at Las Vegas Ranch, at various points on the Spring Mountain range, and some few at Eldorado Cañon and below, in and about Cottonwood Island. There cannot be more than two thousand in all, the principal chief of whom is Tercherum, an honest, well-dispositioned, chunky little man, who seemed to have but little authority outside of his own small number of wick-e-ups.

For the most part they are a wicked, saucy, and independent set. They have seen and mixed with many whites, principally on the old emigrant road; know well the value of money, and have a great desire for clothes and blankets. They make frequent pilgrimages, and always return well laden with spoils, both in wardrobe and funds. They plant but little, living for the greater part on pine-nuts, which are very plentiful, and by hunting, which around these mountains is better than at any point along the route. By a little good management they could be collected together and made a self-supporting people. No presents, so far as I could learn, have been made to any of these Indians to the south of 38° latitude, or Quinn's Cañon, to which point it is understood that the treaty made by Governor, now Senator, Nye, in 1863, extended.

It is hoped that the information at present gained, and which may be acquired by careful attention on the part of the superintendent of Indian affairs for Nevada, will soon give to these Indians the same annuities that others receive throughout the State; and it will have a great effect in quieting not only them, but the apprehension felt by settlers who occupy, in small parties, here and there, ranches, upon which the Indians at any time are apt to levy contributions.

Preliminary Report Upon A Reconnaissance Through Southern and Southeastern Nevada, Made in 1869, pp. 35-37.

APPENDIX F

EXCERPTS OF GEOLOGICAL DATA ON THE SNAKE MOUNTAINS GATHERED BY THE WHEELER SURVEYS

The Snake range, on the borders of Utah and Nevada, is the most easterly of the high series that intervene between the desert depressions of Great Salt Lake at the east and the Humboldt sink at the west; it overlooks all the ranges of Utah to the Wahsatch. Its axis, which is exposed for nearly the whole length, consists of quartzite and limestone, with a limited amount of crystalline schists and granite. In the neighborhood of Clifton mining district, the most northerly point visited, rhyolitic lavas and syenite make up a great portion of the surface, but limestone masses are visible toward the eastern flank of the range, with eastward dip. At Uiyabi Pass there are slight exposures of limestone and sandstone, which indicate an anticlinal structure; but a few miles south the mountain rises rapidly in a single mass of westward-dipping strata. These are quickly replaced upon the crest of the ridge by granite, which constitutes the high peaks immediately east of Deep Creek Valley. The western base, however, at that point shows stratified rocks with the same dip. South of Pleasant Valley a portion of the range, locally known as Kern Mountains, has been greatly disturbed, and perhaps presents a reverse dip; but the interruption is only a few miles in extent, and beyond, in the main Snake range, the westerly dip is resumed, and continues for thirty miles, to Sacramento pass, a few miles north of Wheeler's Peak, the highest summit of the range. The peak appears to be the center of a fractured quaquaversal, the rocks upon its flanks dipping from it, not merely to the east and west, but to the north and south. The quartzite of its crest is covered at the north by the limestone of the Sacramento mining district, and at the south by heavy limestone beds; the base, at least, of the series belonging to the Silurian system. The mountain is deeply scored by cañons heading near the peak, and in the *debris* brought down through these on the western side Mr. Howell found granite boulders, but the portion of the range from which they were derived was not visible from any of our lines of examination. In that part of the range between the Sacramento district and the Kern Mountains, where the structure is most regular, the principal mass of the mountain consists of strata inclined to the west, but there are at the eastern base a few hundred feet of rocks with opposed inclination.

The Schell Creek range, Nevada, has an altitude at White's Peak, (latitude 39° 15′,) and for six or eight miles southward, of 10,500 to 11,200 feet. The crest is remarkably acute, and is buttressed by lateral spurs, between which are close, hopper-shaped valleys, that once contained very small glaciers. The ice could have moved at most only two or three miles, and the moraines, which are its only observed record, were pushed no lower than 8,000 feet. A little farther south, (latitude 39°,) and in the next range to the east, Wheeler's peak rises to a height of 12,000 feet, and bears upon its eastern flank a moraine of the same character and at the same altitude as those of the Schell Creek range, but of greater magnitude, and retaining Alpine lakes. I did not myself visit the lakes, and indeed saw only the lower side of the moraine, but, by the descriptions of Lieutenant Wheeler and Mr. W. M. Ord, who ascended the peak in 1869 and viewed them from above, I am persuaded that the waters are dammed, either by the moraine I saw or by later formed moraines of the same glacier. No opportunity was afforded to look for glacial phenomena on other sides of the peak, and it is not improbable that they shall be discovered a few miles farther south on the same range.

Gosi-ute and Kern Mountains are included under this head, as they belong to the same line of uplift, and are in fact all parts of the same range. Structurally the range is in part anticlinal and in part monoclinal. At Uiyabi Pass and northward, for some distance, the range is anticlinal, but from there southward to Pleasant Valley it is a monoclinal, dipping to the west. At Pleasant Valley the structure again changes, and Kern Mountains are anticlinal or quaquaversal. Thence southward to Sacramento Pass the range is monoclinal again, with the dip as before to the west. From the pass southward the rocks form an anticlinal fold, the axis of which rises to Wheeler's Peak, and then falls again, producing an elongated quaquaversal.

A short distance south of the peak the western half of the anticlinal disappears, leaving the ridge a monoclinal, with its bluff face to the west. Thus it will be seen we have a series of anticlinals and monoclinals, following each other in quick succession. There is also in some places a local mingling of these and other systems, which it is not deemed advisable to note in a general description like the present. Patches of rock, sometimes of considerable extent, with a reverse dip, were seen along the bluff bases of the monoclinals, but they are small in amount and exceptional in character. The nucleus of the range is granite, which is exposed at many places, overlaid with quartzite, shale, and limestone. South of Wheeler's Peak there is an exposure of 4,000 or 5,000 feet of limestone of the usual bluish-gray color. Immediately under this comes quartzite, with thickness unknown, but probably not less than 1,000 feet. This forms the summit and slopes of the peak, but the deep cañons from the same penetrate the granite, as is shown by the bowlders brought down in the wash.



Fig. 98.—Longitudinal section of Snake range from Sacramento Pass to Wheeler's Peak.

Four to six miles north of the peak is a high pass—a depression in the profile of the mountain due to a cross-fault, with the downthrow to the south. Fig. 98 shows the structure at this point, the line of section being lengthwise of the range, and east of the axis of the anticlinal, so that the beds represented have an easterly as well as a westerly dip. This fault brings the granite well into view, and exhibits its relation to the overlying quartzite and limestone.

From Sacramento Pass northward to the Kern Mountains the bluff eastern side of the range presents limestone with fissile micaceous quartzite at the base. The whole central portion of Kern Mountains is granite, and is flanked on all sides with quartzite, shale, and limestone, which dip outward at a high angle.

From Pleasant Valley to Uiyabi Pass the base of the range is granite, overlaid and flanked on the west with quartzite and limestone, except at the head of Deep Creek, and northward for a few miles, where the limestone and quartzite have been worn away, leaving the bare granite. At Uiyabi

Pass there are from 200 to 400 feet only of quartzite between the granite and limestone, which shows it much thinner than at Wheeler's Peak, and the little evidence collected indicates a gradual thinning of the quartzite on this range, from south to north. All of the limestone exposed doubtless belongs to the same bed. The order of superposition is always the same—limestone, frequently a little shale, quartzite, and granite. At Uiyabi Pass I estimated the thickness of limestone at 3,000 to 5,000 feet. At Pleasant Valley the same, while south of Wheeler's Peak, the exposure is apparently still greater. The prevailing color is bluish-gray. It is everywhere more or less changed, and much of it is very highly metamorphic. Only a few fossils were found, but all indicate Carboniferous Age, and at Uiyabi Pass *Fusulina cylindrica* was among the number.

U.S. Army, Engineer Department, *Report Upon Geographical and Geological Explorations and Surveys West of the One Hundredth Meridian, In Charge of First Lieut. Geo. M. Wheeler, Corps of Engineers, U.S. Army, Under the Direction of Brig. Gen. A.A. Humphreys, Chief of Engineers, U.S. Army* (Washington, Government Printing Office, 1875), Vol. III – Geology, pp. 30, 240-42.

APPENDIX G

REPORT ON TRANSIT OF VENUS BY WILLIAM EIMBECK, U.S. COAST AND GEODETIC SURVEY, DECEMBER 6, 1882

LEHMAN'S RANCH, NEVADA, *December* 7, 1882.

SIR: I beg leave to present the following report on the observations of the contacts at egress made at A. S. Lehman's ranch, in Nevada:

The geographical position of the station occupied was derived from a small triangulation executed for the purpose of connecting the State boundary of Nevada and Utah with Jeff. Davis Peak, a principal station of the geodetic survey of the thirty-ninth parallel of latitude, and the position of which depends upon the Coast Survey telegraphic longitude of San Francisco and several of the astronomical azimuths and latitudes observed in connection with the geodetic survey referred to.

The geodetic positions of Jeff. Davis Peak and the Transit of Venus station as resulting from the field computations are as follows:

	Latitude.	Longitude.
Jeff. Davis Peak	+38° 59′ 03″.00	+114° 18′ 47″.35
Transit of Venus station	+39° 00′ 34″.74	+114° 11′ 04″.59

These may be regarded as reliable to within about 1″ in latitude and 2″ in longitude. Whatever corrections the final adjustment of the triangulation may yield for the position of Jeff. Davis Peak will apply in like manner to the position of the Transit of Venus station.

The altitude of the latter station above sea-level is 1900 meters nearly.

The contacts were observed with a Steinheil refracting telescope of 5⅝ inches objective, using the full aperture, and a magnifying power of 250 diameters. The excessive glare of the sun's light was screened down to proper intensity by a small piece of "London-smoke" glass attached to the eye-piece. The focal adjustment of the telescope was made with precision by pointings upon the larger planets at night, and again, finally, by pointings upon Venus itself on the day of the Transit. The definition of the telescope thus focused was very satisfactory, notwithstanding the heating of the eye-piece by continued pointing upon the sun. The telescope, although equatorially mounted, was without a driving apparatus. It was kept properly pointed by means of the slow-motion movement worked by hand.

On the morning of the 6th of December the sky was generally clear, yet there hung threatening storm clouds upon the eastern horizon, shutting away from view the sun, and which on that account was never seen until the planet had shifted fully a diameter upon his disk. The atmosphere at this time seemed much disturbed and undulated strongly. Fortunately, as the day advanced matters changed greatly for the better, and by noon, as the great event of the day was rapidly drawing near, all clouds had vanished, leaving nothing but a thin sheet of haze in the southern skies, not dense enough to impair the distinct vision of the sun. At 17^h 15^m chronometer time, the final pointing of the telescope was made, and the progress of the Transit uninterruptedly watched until after occurrence of the third contact. There was now almost perfect calm, and as the boiling of the atmosphere had well nigh entirely ceased the distinctness and steadiness of the images of both the planet and the sun were all that could be wished for. In fact everything seemed to assure complete success. We were ready for the work.

The record times of the several phases noted are the following:

	h.	*m.*	*s.*	
IIId contact. At	17	17	30.0	contact rapidly nearing.
	18	01.5		doubt—not yet.
	18	08.5		contact, cusps persistently separated.
	18	15.0		contact plainly passed—cusps distinct and steady.

IVth contact. The phases of this last contact were noted as follows, viz:

	h.	m.	s.	
At	17	38	08.0	contact rapidly approaching.
		38	30.0	doubt—not yet.
		38	36.5	then—last contact.
		38	42.5	contact certainly passed; sun's limb undistorted and persistently complete.

This concluded the observations of the contacts at egress, the only ones visible at this station.

The times, as above noted, being in accordance with the face indications of sidereal chronometer Dent 2147, require correction for *error* and rate to reduce them to *local* sidereal time. From star transits, observed with 30-inch meridian telescope, Coast Survey No. 5, set up in the meridian of the equatorial, the error of this chronometer was found to be:

	h.	m.		m.	s.	
December 3. At	21	20	face time =	+1	51.20	from 4 stars.
5. At	23	00	face time =	+1	51.35	from 10 stars.
6. At	22	15	face time =	+1	51.33	from 9 stars.

The probable uncertainties of these determinations do not exceed about one-tenth of a second. The running of the chronometer, it will be seen, was quite steady; assuming its rate zero and correcting accordingly, and reducing at the same time also to mean time—the local times of the principal phases of the Transit stand as follows:

	Sidereal time.				Mean time.		
	h.	m.	s.		h.	m.	s.
IIId contact.	17	16	10.2	doubt—not yet	0	14	09.67
		16	17.2	contact		14	16.65
IVth contact.	17	36	38.7	doubt—not yet	0	34	34.82
		36	45.2	contact		34	41.30

It is important to remark that during the critical moments the observer kept his attention steadily fixed upon the progress of the Transit and announced the occurrence of the different phases observed, *viva voce*, to an experienced recorder, Mr. B. Christensen, who noted and recorded the times in accordance with the face indications of the chronometer.

As regards the "black drop" no such phenomenon as it has been pictured by observers of former transits was seen, nor even anything remotely resembling it. On the contrary, the inner contact seemed to come about in a geometrical sort of way without disturbance or surprise, but very slowly. It was surprising to me to find, on examining the record after everything was over, that the lapse of time between the important phases as noted amounted to only about seven seconds, for my impression was that the interval seemed much greater—three times as great. I believe the observation of the contracts to be trustworthy and entitled to confidence. They were made under circumstances quite favorable, especially as regards state of the atmosphere. Only in the matter of screening down the sun's excessive light it was found as the time of inner contact neared that the proper measure had been exceeded by neglecting to make allowance for the lesser intensity of the sun's light at the limb. Unfortunately the peculiar arrangement improvised for screening off the excess of solar light did not permit of correcting the mistake when noticed without hazarding the whole of the observations. Owing to this excess of screening, and likewise perhaps to the exceeding slowness with which the contacts seemed to come along, it is probable that I was *late* rather than otherwise in judging the moments of contacts. For these reasons it is my judgment, after mature reflection, that the means of the times of *doubt* and *contact* as noted may be regarded as representing more nearly the times of true geometrical contacts than the single *contact* times as actually noted.

In order to ascertain the error of the mean time chronometer 2404, used by Mr. Marr, of my party, the following comparisons with sidereal chronometer Dent 2147 were made:

		h.	*m.*	*s.*		*h.*	*m.*	*s.*	
December 6:	Sidereal	18	01	21.0	=	1	14	59.25	mean time.
	(No. 2147)	22	56	11.0	=	6	08	58.75	(No. 2404).

The errors of chronometer 2404 on local mean time were therefore respectively + 17^{m} 37^{s}.2 and + 17^{m} 35^{s}.0. Correcting Mr. Marr's observations accordingly, his contact times expressed in local mean time reduce to the following, viz:

	h.	*m.*	*s.*
IIId contact =	0	14	07.0
IVth contact =	0	34	21.9

Both times several seconds earlier than as observed by myself, presumably in consequence of the inferior telescopic power used by him. Mr. Marr's own report will be found appended.

It may be proper to state in conclusion that the Transit occurred whilst the party was still engaged in packing down camp outfit and instruments from Jeff. Davis Peak and in storing them at Lehman's Ranch, and that the contact observations herein reported did not interfere with nor delay the regular work of the party nor cause extra expenses to the Survey.

The observations were made in conformity with the printed instructions issued by the Transit of Venus Commission as nearly as the means at hand and existing circumstances permitted.

Respectfully submitted by

WILLIAM EIMBECK,
Assistant.

Prof. J. E. HILGARD,
Superintendent United States Coast and Geodetic Survey, Washington, D. C.

LEHMAN'S RANCH, WHITE PINE COUNTY, NEVADA,
December 6, 1882.

Annual Report of the Superintendent of the U.S. Coast and Geodetic Survey, 1883, Appendix 16, pp. 376-78.

APPENDIX H

EXAMINATIONS OF WHEELER PEAK TRIANGULATION SITE BY U.S. COAST AND GEODETIC SURVEY PERSONNEL IN 1925, 1944, AND 1957

1925

WHEELER PEAK (White Pine County,Nev.,W.E.,1882; W.M.,1925)--On Wheeler Peak, the highest and most prominent mountain of the Snake Range, on the W or higher prong of the double peak.

Station is marked by a copper bolt leaded in a drill hole in solid rock. It is also marked, a few inches above the bolt, by a drill hole in a flat stone secured in position by the masonry foundation built for the instrument. The station is nearly surrounded by a ringwall of rocks. Three drill holes in solid rock are just outside the ringwall at the following distances from the station: 2.40 meters (7.9 feet), N; 2.60 meters (8.5 feet), E; and 2.40 meters (7.9 feet), SW. The vertical-circle station, also surrounded by a ringwall, is 57.75 meters (189.5 feet) E of the station.

Station is best reached from Baker, Nevada, by road to Lehman Caves National Monument, thence by trail and on foot to station.

1944

(E.H.B.,1944)--Station was recovered and all marks found to be in good condition. Reference marks 4 and 5 and an azimuth mark were established. At this time there is no masonry foundation over the mark. A wood stand 2.33 meters in height was used for the observations. The ringwall of rocks around the station is still in good condition but the wall that was once around the vertical-circle station has been demolished and no measurement or direction was taken to it. The drill holes were found to be in boulders in or just outside of the wall; they appeared to be insecure and may have been moved. The large cairns on the E and W ends of the ridge appeared to be in very good condition.

Wheeler Peak is the higher and W of two, there being a deep gash between. The peak is located in the Nevada National Forest and is about 5 miles W of the Lehman Caves National Monument.

Station is a copper bolt leaded in a boulder or a piece of broken bedrock projecting about 3 inches above the general surface. The bolt extends about 1 inch above the boulder, has a cross marked on the top, and is not stamped. It is approximately in the center of the ringwall which is about 11 feet in diameter and 3 to 4 feet high.

Reference mark 1 is a drill hole in a boulder. It is about 1 foot lower in elevation than station mark and is just outside the rock wall.

Reference mark 2 is a drill hole in a boulder. It is at about the same elevation as the station mark and is just outside the rock wall.

Reference mark 3 is a drill hole in a boulder. It is about 1/2 foot lower in elevation than the station mark and is just outside of the rock wall.

Reference mark 4 is a bronze reference disk set in outcropping bedrock about flush with the ground. It is about 1 foot lower in elevation than the station mark and is stamped "WHEELER PEAK NO 4 1944."

Reference mark 5 is a bronze reference disk set in outcropping bedrock about flush with the ground. It is about 1 foot lower in elevation than the station mark and is stamped "WHEELER PEAK NO 5 1944."

Azimuth mark is a bronze azimuth disk set in a sharp 2-inch depression in a boulder and is stamped "WHEELER PEAK 1944." It is 5 feet ENE of a 3-foot cairn.

To reach station from Baker, go S on main road for 0.8 mile to a road leading right and a sign reading "Lehman Creek Forest Camp", turn right and continue for 3.4 miles, keep right and continue for 0.15 mile to a right fork. Take right fork and continue for 0.5 mile to a sign reading "Nevada National Forest Boundary", continue for 1.4 miles, keep right and continue for 0.1 mile to the entrance to Lehman Caves National Monument. Keep straight ahead for 0.3 mile to a picnic area, keep right and continue for

0.6 mile to a T-junction, turn left and continue for 2.0 miles to a picnic area, keep right and continue for 1.1 miles on a trail road to the end of truck travel. From here various Forest Service signs point the way up a well marked trail to Stella Lake which is at the base of the peak and from this point the peak stands out sharply to the S. From the lake hike W up to the top of the ridge and then to the left on a distinct trail leading directly up to the peak and the station. The azimuth mark is to the left of the trail, about 29 paces, in a small saddle just before the last sharp climb to the station. The position on the trail has been marked by a cairn.

OBJECT		DISTANCE		DIRECTION
MURPHY		metere	feet	0°00'00"0
R.M. 3	SW	2.403	7.890	46 13
R.M. 5	WSW	3.846	12.625	69 58 18
Cairn	WNW	75 paces		102 31 17
Azimuth Mark	NW	1/2 mile		141 39 47.9
Cairn	N	2 miles		167 09 40
R.M. 1	N	2.495	8.179	183 12
R.M. 4	ENE	6.944	[illegible].789	252 23 41
R.M. 2	ESE	2.628	8.620	300 10

1957

Name of Station: WHEELER PEAK
Established By: N.S. Year: 1882 State: Nevada
Recovered By: °Walter R. Holm Year: 1957 County: White Pine

Detailed statement as to the fitness of the original description; including marks found, stampings, changes made, and other pertinent facts:

Station recovered as described and all marks found in good condition. The three drill holes in boulders were recovered and appear to be insecure and may have been moved. The ringwall of rocks around the station and the two large cairns on the east and west end of the peak are in good condition. A complete description follows.

Station is located on Wheeler Peak, the highest and most prominent mountain of the Snake Range and on the west and highest prong of the double peak. It is, airline, about 10 miles west southwest of Baker and 5 miles west of the Lehman Caves National Monument.

Station is reached as follows: from the U.S. Post Office in Baker, go west on a blacktop road, towards the Lehman Caves, for 4.8 miles to a sign " Lehman Creek, Camp Grounds 2 "; turn right as per sign and go 2.6 miles to a dim right fork and a sign " Wheeler Peak 7 "; turn right on the track road and go 1.1 miles to the end of the road and the start of the trail. From here pack west up a distinct trail for about 4 miles to Stella Lake which is at the base of the peak which stands out sharply to the south. From the lake pack northwesterly up the trail that curves around to the left and follows the main ridge southerly and directly to the station which is about 2 miles. The azimuth mark is to the left of the trail in a small saddle just before the last sharp climb to the station and marked by a large cairn. Time of pack is about 4 1/2 hours. The last water is at Stella Lake. Horses can be taken to the last sharp climb to the station which is just beyond the azimuth mark.

Station mark, unstamped, is a copper bolt leaded in a drill hole in a boulder about 2 feet square and projects 3 inches. The bolt extends 1 inch above the boulder and has a cross marked on top. It is approximately in the center of the ringwall of rocks which is about 11 feet in diameter and 3 to 4 feet high.

Reference mark number 1 is a drill hole in a boulder 2 by 1 feet and about 1 foot lower than the station. It is 1 foot outside the rock wall.

Reference mark number 2 is a drill hole in a boulder 18 by 10 inches, projecting 3 inches and is at about the same elevation as the station. It is 1 foot outside the rock wall.

Reference mark number 3 is a drill hole in a boulder 2 by 1 feet, projecting 1 foot and about 1/2 foot higher than the station. It is 1 foot outside the rock wall.

Reference mark number 4, stamped " WHEELER PEAK NO 4 1944 ", is a standard disk cemented in a drill hole in outcropping bedrock 3b by 8 inches exposed, projecting 1 foot and about 2 feet lower than the station. It is 12 feet outside the rock wall.

Reference mark number 5, stamped " WHEELER PEAK NO 5 1944 " is a standard disk cemented in a drill hole in outcropping bedrock flush with the ground and at about the same elevation as the station. It is 3 feet outside the rock wall and marked by a 1 foot cairn.

Azimuth mark, stamped " WHEELER PEAK 1944 ", is a standard disk cemented in a drill hole in a 2 inch depression in a boulder 2 by 3 feet and projecting 1 foot. It is about 60 feet east of the trail and a 3 foot cairn and 3 feet east of a 2 foot cairn.

OBJECT		1957 DISTANCE (feet)	(meters)	DIRECTION
UTAH NEVADA 165 1944				0 00 00.0
R.M. #2	ESE	8.587	2.618	21 33
R.M. #3	SW	7.888	2.403	127 40
R.M. #5	WSW	12.616	3.846	150 18 04
Cairn	WNW	255		182 45
Azimuth Mark	NW	approx. 1 mile		221 56 37.6
Cairn	NNW	approx. 2 miles		247 26 23.0
R.M. #1	N	8.193	2.498	262 35
R.M. #4	ENE	22.784	6.944	332 38 03
Cairn	ENE	approx. 1 mile		336 34 02.0
Cairn	E	345		342 47

		1944		
UTAH NEVADA 165				0 00 00.0
R.M. #2	ESE	8.620	2.628	20 27
R.M. #3	SSW	7.890	2.403	126 30
R.M. #5	WSW	12.625	3.846	150 15 01
Cairn	WNW	78 paces		182 48 00
Azimuth Mark	NW	1/2 mile		221 56 31.3
Cairn	N	2 miles		247 26 23
R.M. #1	N	8.179	2.495	263 29
R.M. #4	ENE	22.789	6.944	332 40 24
Cairn				336 33 56
Cairn		115 paces		342 44 52

Height of stand: 1.39 mtrs.

U.S. Coast and Geodetic Survey, "Horizontal Control Data," July 1965.

APPENDIX I

LAWS OF WHITE PINE MINING DISTRICT
OCTOBER 10, 1865

TUESDAY, October 10th, 1865.

A company of miners met on the above day for the purpose of forming a district. The meeting was called to order and Robert Morrell was nominated to act as President.

Motion made and carried that this district be known as White Pine District—bounded on the north by the Red Hills, and running from thence south to a point where the mountain runs into a foot-hill; from thence east, 12 miles *from thence*; from thence north, and from thence west to the place of beginning; the district being twelve miles square.

Thomas J. Murphy was nominated to act as Recorder for the district, and was duly elected Recorder of White Pine District for a term of twenty-four months from date.

On motion, the following By-Laws were presented and approved:

First—The Recorder shall go on the ground and record all claims, for which he will be allowed one dollar per name, after which no mine can be relocated, but belongs forever to the parties whose names are recorded.—[Amended.]

Second—There shall be an election for a new Recorder on the 10th of October of every second year, who shall be in office as Recorder for two years, unless by death removed, or by other reasons, when a notice signed by fifty of the miners of the district can call a meeting, published by a notice posted 30 days in the district, and advertised for 30 consecutive days in the Reese River papers. —[Amended.]

Third—It shall be the duty of the Recorder to keep a suitable set of books, or a book, a full and truthful record of the proceedings of all public meetings; to place on record all claims put on notice or brought to him for record, when such claims shall not interfere or affect the rights or interests of prior locators, recording the same in order of their date. It shall be the duty of the Recorder to keep his books open at all times to the inspection of the public. He shall also have the power to appoint a deputy to act in his stead. It shall be the duty of the Recorder to deliver to his successors in office all books, records, papers, etc., belonging to or pertaining to his office.

Fourth—All examinations of the records must be made in the full presence of the Recorder or his deputy.

Fifth—Notice of a claim or location of mining ground by any individual, or by a Company, on file in the Recorder's office, shall be deemed equivalent to a record of the same.

Sixth—Each claimant shall be entitled to hold by location 200 feet on any lead in the district, with all the dips, spurs, angles, offshoots, outcrops, depths, with variations, and all the mineral and other valuables therein contained. The discoverer of, or locator of a new lead being entitled to one claim extra for discovery.

Seventh—The locator of any lead, lode or ledge in the district shall be entitled to hold on each side of his lead, lode or ledge, located by him, or them, one hundred feet. But this shall not be construed to mean any distinct or parallel ledge within two hundred feet, other than the one originally located.

Eighth—All locations shall be made by a written notice posted upon the ground.

Ninth—Every claim located by individuals or company shall be recorded within 14 days after the date of location.—[Amended.]

Tenth—The Recorder shall be allowed 50 cents per name for every name on an abstract of record furnished by him.

Eleventh—The Recorder or his deputy is not required to reside constantly in the district.—[Amended.]

Twelfth—These laws cannot be amended, altered or repealed for two years.

Thirteenth—These laws shall take enect on and after the 10th day of October, 1865.

AMENDED LAWS, WHITE PINE MINING DISTRICT, JULY 20, 1867

RECORDER'S OFFICE, MOHAWK CANON,
WHITE PINE MINING DIST.,
July 20th, 1867.

Pursuant to a call, issued by the Recorder, the miners of White Pine Mining District met at the Recorder's Office at Mohawk Cañon, on Saturday, July 20th, 1867, for the purpose of electing a Recorder and amending the By-Laws of said district.

On motion made and seconded, H. Woodson was chosen Chairman, and A. J. Leathers, Deputy Recorder, acted as Secretary.

The following amendments to the By-Laws were submitted and adopted:

First—The Recorder shall be allowed fifty cents per name for recording, instead of one dollar.

Second—When a claim is located, and the proper notice put on it, there shall be allowed ten days to file a notice for record, and thirty days additional time, within which the proper amount of work must be done on the ledge.

Third—All locations already recorded shall have two days' work done on them for every location on or before the first day of February of each year, which work shall hold good until the 20th of July of the same year, and all locations made hereafter shall have the same amount of work done on them within forty days after locating them, which work shall hold good for one year from the date of the record of such work.

Fourth—Any location having the necessary amount of work done on it, as in the previous article, shall have the same surveyed and the work recorded by the Recorder, within ten days after said work is done, and the Recorder shall receive two dollars for his services to survey and record the same.

Fifth—Any claim upon which the necessary work is not done by the first of February shall be subject to re-location.

Sixth—Any claim, having the necessary work done upon them within three months previous of the adoption of these by-laws shall be considered as having done work to hold for one year from this date, the same being duly recorded as per article fourth.

Seventh—The Recorder shall have the privilege of absenting himself from the district, but shall have a deputy appointed to attend to his business during such absence; and in case of resignation, removal or death of the Recorder, the deputy shall immediately give ten days' notice, by posting written notices at three conspicuous places in the district, that an election will be held for Recorder, stating time and place, when a majority of the miners present shall elect to fill the vacancy for the unexpired term, and until such officer be qualified the deputy shall act as Recorder.

Eighth—The Recorder shall, upon the written application of five miners, call a special meeting of the miners of the district, when it shall require a majority of the miners of the district to transact any business; but at the annual meeting on the 20th July of each year, a majority of the miners present shall have power to transact any business coming before the meeting.

Ninth—Work done upon any portion of a location shall be deemed as having been done for the benefit of the whole of said location, except in case as stated hereinafter,

Tenth—No person shall have the privilege of participating in any meeting except *bona fide* miners of the district; and no person shall be considered a miner unless he has a claim recorded and worked accorded to the by-laws.

Eleventh—In case where a portion of a Company refuse to do the necessary amount of work to hold their claim, after being notified by placing a written notice on the Recorder's office for twenty days, and the other portion of the Company wish to work enough to hold their part of said claim, they shall give notice in writing of their intention to the Recorder, and designate what part of the claim they wish to hold, and have the work recorded for that part of the claim, and the balance of said claim shall be subjected to re-location if the laws are not complied with.

Twelfth—The Recorder's term of office shall be one year, or until his successor is qualified.

Thirteenth—All previous by-laws, or parts of by-laws, conflicting with these by-laws, are hereby repealed.

Daily Alta California, February 8, 1869.

APPENDIX J

ROLE OF CHINESE IN CONSTRUCTION OF WEST AND EAST DITCHES AT OSCEOLA

Although there is no documentation attesting to Chinese involvement in the construction of the West and East ditches at Osceola, it is likely that they formed a portion of the work crews on the projects. The first group of several hundred Chinese to enter present-day Nevada had been imported in the late 1850s to dig a canal from the Carson River to Gold Canyon. Later during the construction of the transcontinental railroad large numbers of Chinese were imported to serve as laborers. After the railroad was completed in 1869, some Chinese drifted into the various mining towns that were established as a result of the White Pine mining rush and its aftermath. They sought employment among the occupations open to them: cooking, laundering, wood-cutting, water-carrying, vegetable gardening, and produce peddling. Other Chinese took employment on ranches, performing manual labor, cooking, and sheepherding chores. A few Chinese became merchants or acquired mining claims, the latter generally in the less desirable locations of the mining districts. Chinese miners bought a substantial number of mining claims at Osceola in 1877.

Throughout the late nineteenth century the number of Chinese in White Pine County was small. Census statistics indicate that there were 292 (4.1%) Chinese in the county in 1870, 107 (4.0%) in 1880, 46 (2.7%) in 1890, and 31 (1.6%) in 1900.

Osceola was one of the towns where Chinese settled after gold was discovered in 1872. Here they engaged as cooks, launderers, and miners, while a few owned donkey trains to haul ore and wood to the stamp mills. Others would undoubtedly help construct the West and East ditches in the 1880s.

The Chinese lived apart from the rest of the community of Osceola, most living in hovels or subterranean dens excavated in the hillside overlooking the town. There they adhered to their traditional way of life. According to one writer, the Chinese quarter in the mining towns such as Osceola was readily recognizable by its "neat storehouses, curious trinkets, grewsome smells of doubtful meats and packed dormitories, and the one pervading sickly odor of burning opium." There was a separate Chinese cemetery at Osceola, but the bodies were later exhumed and returned to China.

Merrifield, "Nevada, 1859-1881", pp. 29-31, Read, *White Pine Lang Syne*, pp. 157-58; *Ward Reflex*, September 20, 1877; and *White Pine Daily News*, April 18, 1885.

APPENDIX K

ENTRY FOR OSCEOLA GRAVEL MINING COMPANY IN ASSESSMENT BOOK, WHITE PINE COUNTY, 1891

Possessory claim in and to the following described property	
Goods, wares, and merchandise	$4,000
6 work horses	300
2 stock horses	50
4 wagons	200
Hydraulic pipes, etc.	2,500
Spring Valley water ditch with flumes (Value)	$10,000
Snake Valley water ditch (20 miles in length with flumes) (Value)	$10,000
One 10 stamp quartz mill and all machinery and buildings situated 5 miles north of Osceola	
Saw mill on Mount Moriah	
All buildings at the hydraulic mines, consisting of boarding house, dwelling house, office, machine shop, blacksmith shop, stable, and corrals with electric lights (Value)	$5,250
Ben Lehman Ranch – 320 acres of land with improvements situated in Snake Valley	
Value of land	$220
Value of improvements	$180
Williams Ranch – 160 acres, no water – Value	$100
Willards Ranch – 160 acres, no water – Value	$50
Spencer House in Osceola – Value	$200
Store and warehouse in Osceola – Value	$400
Hanigan Cabin and lot in Osceola – Value	$30
Trigaskas Stable in Osceola – Value	$50
Matson House in Osceola – Value	$100
Total Value	$34,630

File No. 341 - Tungsten Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

APPENDIX L

PRELIMINARY REPORT ON THE TUNGSTEN MINING AND MILLING COMPANY'S TUNGSTEN PROPERTY AT TUNGSTEN, NEVADA, MARCH 7, 1912

Location

This property is located fifty miles southeast of Ely, Nevada on the east side of Spring Valley and the west slope of Mt. Wheeler. There is a good wagon road between the mine and Ely; this being the nearest railroad point. The average elevation of the camp is 8000 feet. Just above the camp on Mt. Wheeler there is an abundance of timber for all mining and construction purposes.

Equipment

The present equipment consists of, one air compressor of four drills capacity, four 2-3/4 inch drills, one 50 ton concentrating plant, one steam plant, one water power plant (each of the latter being of sufficient horse power to run both the conpressor and mill), an office, mess house and bunk houses enough to accomodate 35 or 40 men. All of the above is of good construction and in first class condition. The mill is well adapted to the ore, made a good saving of values during the time it was running, and is a good piece of construction throughout. The water power plant can be run during the summer months only. Probably six months out of the twelve. The first one and one quarter miles of the flume is an open ditch and this fills with snow and freezes during the winter....

Geology

The whole area consists of a very regular grade of rather fine grained granite. The percentage of mica is very small and

it is always muscovite. Capping this granite higher up on Mt. Wheeler, and dipping at such an angle that 100 feet less erosion would have left it over the entire area, there is a large body of quartzite. It seems to me that this fact may have had an important bearing on the ore deposition, to be mentioned later.

The granite body is cut by nine (known) parallel veins. Their strike is about N - 70 - E and their dip 70° to the north. These veins are all of about the same size, having average widths of about three feet. The vein material is a clean,white, hard quartz and is identical in all the veins. The tungsten ore occurs in the veins as hubnerite (tungsten with manganese). Specimens of schelite (tungsten with calcium) have been found near surface but only in very small quantities. The hubnerite occurs in the quartz in one or more stringers (usually several) with the best one on the hanging wall. All nine of the veins have traces of ore on surface, much the best showing however is on the so called Hubnerite Vein; which has received most of the development work. The second best showing being on the Side Issue Vein which has received a little development.

Development Work

The development work done on the Hubnerite Vein consists of 1200 feet of drifting and 300 ft. of raises. The location of all of this work is shown on the enclosed profile (No. 2). The development on the Side Issue Vein consists of a cross cut tunnel driven to the vein and a raise on the vein from there to surface, a distance of 80 feet. At the tunnel level the vein is only

a stringer. Going up the raise it gradually increases in width until it is 2½ feet wide at surface. It shows no values except in the first 25 ft. from surface, however. (No map of this)

The result of the development has been discouraging. You will note from the profile that they have gone through the ore into a barren zone in five different places as follows - Main Tunnel, Hub Tunnel, Shaft D and Upper Tunnel on the Hubnerite Vein and in the one raise on the Side Vein. At no point developed does the ore extend more than 50 feet below surface. I have drawn in this ore zone, in yellow, on the profile map. The white background denotes the stoped portion and the dark the unstoped. I have figured five blocks of ore, i e, A, B, C, D and E, which are also designated on the profile. I have obtained the following tonnages.

Ore in Sight

Block A - - - - - 1300 tons
" B - - - - - 290 "
1590 tons in sight

Probable Ore

Block C - - - - - 610 tons
" D - - - - - 750 "
" E - - - - - 1000 "
2360 tons probable ore.

2360
1590
3950 total ore in sight and probable ore.

At 50 tons per day this amount would run the mill but 79 days. To me it would not seem advisable to start the mill for so short a run.

The outcrop of the vein between Tunnel E and the Upper Tunnel is as good as in the other portions. In case it should be the same width and depth upon development, it would give an extra tonnage of about 7500 tons. This seems to be the outside limit of ore contained in the surface zone of the vein. To summarize it consists of the following -

1590 tons in sight
2360 " probable ore.
7500 " undeveloped possible ore.
11450 total possible ore from surface zone.

Costs.

I have gone over all the conditions quite carefully and have figured that the 4850 tons of "ore in sight" and "probable ore" could be mined, milled and the concentrates delivered at New York at a cost of $4.10 per ton by water power, or $5.00 per ton by steam power.

From mill records the ore taken out of the mine averaged 2.40% tungsten. I think we are safe in using the same value for the above ore. Their milling gave them an extraction of 90%. The present quotations on tungsten ore delivered in New York, and of 60% grade (which can be obtained at the mill) is $6.75 per unit. This gives us 2.40% x 90% = 2.16% extraction value.
2.16 x $6.75 = $14.58 extraction value per ton.

$14.58 extraction value
4.10 total costs using water-power
$10.48 probable profit per ton using water power.

$10.48 x 4850 tons = $50,828.00 probable profit using water power.

$14.58 - extraction value
5.00 - total cost using steam
$ 9.58 - probable profit per ton using steam.

$ 9.58 x 4850 tons = $46,463.00 - probable profit using steam.

I have figured that by means of an inclined raise about 60 feet below surface, (and parallel to it) and with vertical raises to surface at intervals of 80 ft. along it, that the ground between Tunnel E and the Upper Tunnel could be developed for about $25,000. If this work showed up the 7,500 tons of ore as estimated above, it would give a development cost per ton of $25,000 ÷ 7,500 tons = $3.33 per ton.

Using the same total costs and values as before we have -

$ 4.10 - total costs (without development) using water power
3.33 - development costs
$ 7.43 - total costs on undeveloped ore " " "

$14.58 - extraction value
7.43
$ 7.15 - probable profit per ton " " "

$ 7.15 x 7,500 tons = $53,625.00 - probable profit using water power.

$ 5.00 - total costs (without development) using steam
3.33 - development costs
$ 8.33 - total costs on undeveloped ore " "

$14.58
8.33
$ 6.25 - probable profit per ton " "

$ 6.25 x 7,500 tons = $44,062.50 - probable profit using steam.

$50,828.00 - profit on ore in sight and probable ore using water pow
$53,625.00 - profit figured on undeveloped ore using water power
$104,453.00 - total profit using water power.

$46,463.00 - profit on ore in sight and probable ore using steam
$44,062.00 - profit figured on undeveloped ore using steam
$90,525.00 - Total profit using steam.

This covers all the surface possibilities of the vein. The figures are much better than I expected them to be when I sent you the telegram on March 6th. I would call your attention to facts that if, the undeveloped part of the veim did not prove as good as expected, if I have been misinformed as to the values, or if the management were not first class, that these profits would not be realized. Before any investment is made the ore values, especially, should be gone into more thoroughly. On the other hand I think the above is a fair estimate of what the owners may expect.

My advice would be to start the inclined raise at once, using steam power for the air drills. If this were pushed as rapidly as possible it would be far enough ahead by June first so that the mill could be started on water power with a reasonable assurance that it could be kept going all summer. Our total estimate of 11,450 tons would keep the mill running 230 days. Whatever ore was left in the fall could either be run out with steam power or held over until the following spring.

Whether or not it would be advisable to do any deep work to determine if there are ore bodies below the surface zone I would rather leave entirely to Mr. Spurr.

I am told that at a similar deposit in Boulder, Colo. they went through a deep barren zone and then came into the ore again. I have had no experience in the matter.

During the time that other work is being carried on the Hub Tunnel could be driven 1000 feet along the vein at a cost of about $8,000. It would seem that this would cut any lower ore bodies that might be there.

Respectfully yours,

(signed) M. B. Huston.

File No. 341 – Tungsten Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

APPENDIX M

LEHMAN CAVES NATIONAL MONUMENT

HISTORY OF WATER RIGHTS

Prepared by L. S. Spaulding, Region Four
September, 1960

About the year 1869 A. S. Lehman established a ranch and built a house near a running stream (Lehman Creek) on the eastern alluvial fan of the Snake Range three miles west of the present town of Baker, Nevada and two miles east of a large cave, discovered at a later date by Mr. Lehman. Mr. Lehman made use of water from a big spring a mile above and west of his house and constructed a ditch to convey the water to his land.[1] The spring became known as "Lehman Spring," sometimes called "Lemay Spring" or "Lerray Spring," and now known as "Big Spring." By 1878, during which year a public land survey was made of the Snake Valley, several families were living in the vicinity. Besides the A. S. Lehman house, located in Section 12, T13, R69E, MDM, the B. Lehman and Baker houses were located at the present site of Baker, Nevada and the Gandie house was a mile south.[2]

About the year 1886 or 1887 the Osceola Placer Mining Company purchased water rights held by ranchers on many of the streams on both the east and west sides of the Snake Range for the purpose of conveying water to the vicinity of Osceola, Nevada townsite for mining purposes. Presumably, rights to Lehman Creek held by Lehman and others were included with the purchases. In 1888 the East Side Ditch, 18-1/4 miles long, diverting water from Lehman Creek and from other streams to the north was constructed. For a period of two or three years the company used water for placer gold mining after which time use of the ditches ceased.[3]

In May, 1887, one year prior to construction of the East Side Ditch, A. S. Lehman filed on sources of water in the Lehman Creek drainage below the anticipated point of taking by the mining company. One filing, dated May 2, 1887 and recorded in Book 34, page 229 of the records of White Pine County was for twenty-five miner's inches of water from Cave Spring and one hundred inches of leakage water to be taken from Lehman Creek below the proposed Osceola Mining Company ditch.[4] Another filing, made on the same date and recorded in Book 34 at Page 230, was for five hundred inches of water from "Lerray Spring" (Lehman or Big Spring). The first filing was for water to be used for agricultural purposes on Lehman's "Cave Ranche" in unsurveyed Section 15, a tract of land including the cave. Immediately after filing his notices, Mr. Lehman constructed a ditch (Lehman Ditch) from Lehman Creek starting at a point about 400 yards northwest of Cave Spring running past Cave Springs, the waters of which were added to the ditch, and running to the "Cave Ranche" in Section 15.[5] The second filing made by Mr. Lehman in 1887 was made to record rights to water of Lehman Spring (Big Spring) which he had been using on his land in Sections 12 and 13 since 1869.[1]

During the period 1872 to 1904 Philip M. Baker, or his predecessors, had diverted water from the combined Lehman and Baker Creeks in the vicinity of the Baker townsite for use on the Baker ranch. Presumably, these rights were not acquired by the Mining Company or were initiated after abandonment by the company. By 1911 Baker had acquired the properties of A. S. Lehman, both that land in the vicinity of the cave and the lands in Sections 12 and 13. In October 1911 Baker filed three proofs of appropriation of water for use on the former Lehman lands and on the Baker ranch. Proof No. 01064 covered the diversion from Big Spring (Lehman Spring) for use on the former Lehman land in Sections 10, 12 and 13. Proof No. 01065 covered the diversion from Cave Springs for use on 7.5 acres in Section 15 near the cave. (No claim was made by Mr. Baker for the Osceola ditch leakage claimed in anticipation of such leakage by his predecessor, A. S. Lehman.)[6] Proof 01066 covered diversions below the confluence of Baker and Lehman Creeks for use on the Baker Ranch.[8]

The properties on which waters under the three proofs were used passed from Philip M. Baker's ownership, the cave property being sold to Ernest C. Adams who acquired Patent No. 724063 from the United States in December, 1919. Adams sold to Nathan Kiger who, in turn, sold to C. T. Rhodes on November 6, 1920.[7] Rhodes, perhaps unaware of Proof 01065, filed Proof 01874 in 1925 claiming water of both Cave Spring and Lehman Creek. He based his claim to the latter source on evidence that a ditch (Lehman ditch) had been constructed from Lehman Creek to the Cave tract and that continuous use of water had been made since July, 1887. However, following a hearing by the State Engineer at Ely, Nevada on March 3, 1931, C. T. Rhodes stipulated along with other interested parties that Proofs 01064, 01065, and 01066 of Philip M. Baker limited the vested rights initiated prior to 1905 of Philip M. Baker and his successors and that proofs conflicting with the Baker proofs be withdrawn.[9] By this action Rhodes withdrew his claim to water of Lehman Creek.

In 1934, following a determination by the State Engineer, the Seventh Judicial District Court of the State of Nevada, in and for White Pine County issued a decree dated October 1, 1934 defining rights in the waters of Baker and Lehman Creeks initiated prior to 1905. C. T. Rhodes was decreed rights to 0.15 cubic feet per second from Cave Spring for the irrigation of 7.5 acres in Section 15, T13N, R69E (the Cave property) with a priority dating from 1890. Rights under Proof 01064 carrying the earliest priority date of 1869 were decreed to the United Securities Corporation and rights under Proof 01066 were decreed to a number of parties.[8]

C. T. Rhodes sold his cave property including rights to Cave Spring under Proof 01065 to White Pine County in September, 1933 and the County conveyed the property to the United States.

On June 3, 1943, the United States filed an application (Serial No. 10959) with the State of Nevada for permission to change the point of diversion, manner of use and place of use of water of Cave Spring held under Proof No. 01065. In the application the source of water was changed so as to include the water of South Spring, the use changed from irrigation

to domestic and recreational and the description of the place of use changed to agree with a more recent protraction of Section lines. At this date (September, 1960) work to divert or to make full use of the water has not been completed. Each year since 1943, annual requests for extension of time have been granted by the State.

NOTES

1. Water Right Location Notice by A. S. Lehman, May 2, 1887, recorded in Book 34 at page 230 of White Pine County. (Docket 1, Item II - 3)

2. GLO plat of T.13N.,R70E.,WM approved February 17, 1879. (Docket 1, Item I-2)

3. Statement of Facts Relating to the Water Rights of the Osceola Placer Company or Hydraulic Mining Company, Osceola, Nevada (transmitted with A. Van V. Dunn's memorandum of March 31, 1943 to the Regional Director, Region Three)(Docket 1, Item II-1)

4. Water Right Location Notice by A. S. Lehman, May 2, 1887 recorded in Book 34 at page 229 of White Pine County (Docket 1, Item II-2)

5. Deposition of E. B. Robison, dated January 22, 1942 (Docket 1, Item II-7)

6. Proof No. 01065 dated October 28, 1911 by Philip M. Baker. (Docket 1, Item II-4)

7. Proof No. 01874 dated March 7, 1925 by C. T. Rhodes (Docket 1, Item II-7)

8. Decree of October 1, 1934 in the adjudication of rights in the waters of Lehman and Baker Creeks (Docket 1, Item III-7)

9. Stipulation in the Matter of the Determination of the Relative Rights in and to the Waters of Baker and Lehman Creeks and their Tributaries. (Docket 1, Item III-3)

Vertical Files, Great Basin National Park.

APPENDIX N

ENTRY FOR ABNER [ABSALOM] LEHMAN IN ASSESSMENT BOOK, WHITE PINE COUNTY, 1891

Possessory claim in and to the following described property

2 work horses	$100
14 stock horses	$200
2 stock cattle	$25
560 acres of land with improvements situated in Snake Valley and known as Lehman Ranch	
Value of Real Estate	$1,000
Value of Improvements	$300
Value of Personal Property	$325
Also 7 acres at Lehmans Cave with improvements	
Value of Real Estate	$7
Value of Improvements	$200
Total Value	$1,865
Total Value of All Property	$2,365

Assessment Book, White Pine County, 1891, Nevada State Archives, Carson City.

APPENDIX O

TREATY WITH THE WESTERN SHOSHONES, NEVADA, 1863

ARTICLE 1.

Peace and friendship shall be hereafter established and maintained between the Western Bands of the Shoshonee nation and the people and Government of the United States; and the said bands stipulate and agree that hostilities and all depredations upon the emigrant trains, the mail and telegraph lines, and upon the citizens of the United States within their country, shall cease.

ARTICLE 2.

The several routes of travel through the Shoshone country, now or hereafter used by white men, shall be forever free, and unobstructed by the said bands, for the use of the government of the United States, and of all emigrants and travellers under its authority and protection, without molestation or injury from them. And if depredations are at any time committed by bad men of their nation, the offenders shall be immediately taken and delivered up to the proper officers of the United States, to be punished as their offences shall deserve; and the safety of all travellers passing peaceably over either of said routes is hereby guarantied by said bands.

Military posts may be established by the President of the United States along said routes or elsewhere in their country; and station houses may be erected and occupied at such points as may be necessary for the comfort and convenience of travellers or for mail or telegraph companies.

ARTICLE 3.

The telegraph and overland stage lines having been established and operated by companies under the authority of the United States through a part of the Shoshonee country, it is expressly agreed that the same may be continued without hindrance, molestation, or injury from the people of said bands, and that their property and the lives and property of passengers in the stages and of the employees of the respective companies, shall be protected by them. And further, it being understood that provision has been made by the government of the United States for the construction of a railway from the plains west to the Pacific ocean, it is stipulated by the said bands that the said railway or its branches may be located, constructed, and operated, and without molestation from them, through any portion of country claimed or occupied by them.

ARTICLE 4.

It is further agreed by the parties hereto, that the Shoshonee country may be explored and prospected for gold and silver, or other minerals; and when mines are discovered, they may be worked, and mining and agricultural settlements formed, and ranches established whenever they may be required. Mills may be erected and timber taken for their use, as also for building and other purposes in any part of the country claimed by said bands.

ARTICLE 5.

It is understood that the boundaries of the country claimed and occupied by said bands are defined and described by them as follows: On the north by Wong-goga-da Mountains and Shoshonee River Valley; on the west by Su-non-to-yah Mountains or Smith Creek Mountains; on the south by Wi-co-bah and the Colorado Desert; on the east by Po-ho-no-be Valley or Steptoe Valley and the Great Salt Lake Valley.

ARTICLE 6.

The said bands agree that whenever the President of the United States shall deem it expedient for them to abandon the roaming life, which they now lead, and become herdsmen or agriculturalists, he is hereby authorized to make such reservations for their use as he may deem necessary within the country above described; and they do also hereby agree to remove their camps to such reservations as he may indicate, and to reside and remain therein.

ARTICLE 7.

The United States, being aware of the inconvenience resulting to the Indians in consequence of the driving away and destruction of game along the routes travelled by white men, and by the formation of agricultural and mining settlements, are willing to fairly compensate them for the same. Therefore, and in consideration of the preceding stipulations, and of their faithful observance by the said bands, the United States promise and agree to pay to the said bands of the Shoshonee nation parties hereto, annually for the term of twenty years, the sum of five thousand dollars in such articles, including cattle for herding or other purposes, as the President of the United States shall deem suitable for their wants and condition, either as hunters or herdsmen. And the said bands hereby acknowledge the reception of the said stipulated annuities as a full compensation and equivalent for the loss of game and the rights and privileges hereby conceded.

ARTICLE 8.

The said bands hereby acknowledge that they have received from said commissioners provisions and clothing amounting to five thousand dollars as presents at the conclusion of this treaty.

Done at Ruby Valley the day and year above written.

James W. Nye.
James Duane Doty.

Te-moak, his x mark.	Po-on-go-sah, his x mark.
Mo-ho-a	Par-a-woat-ze, his x mark.
Kirk-weedgwa, his x mark.	Ga-ha-dier, his x mark.
To-nag, his x mark.	Ko-ro-kout-ze, his x mark.
To-so-wec-so-op, his x mark.	Pon-ge-mah, his x mark.
Sow-er-e-gah, his x mark.	Buck, his x mark

Witnesses:

J. B. Moore, lieutenant-colonel Third Infantry California Volunteers.

Jacob T. Lockhart, Indian agent Nevada Territory.

Henry Butterfield, interpreter.

Charles J. Kappler, comp. and ed., *Indian Treaties, 1778-1883* (New York, Interland Publishing Company, 1972), pp. 851-53.

APPENDIX P

NEVADA NATIONAL FOREST
NEVADA

By the President of the United States of America

A Proclamation

WHEREAS, the public lands in the State of Nevada, which are hereinafter indicated, are in part covered with timber, and it appears that the public good would be promoted by utilizing said lands as a National Forest;

Now, therefore, I, THEODORE ROOSEVELT, President of the United States of America, by virtue of the power in me vested by section twenty-four of the Act of Congress, approved March third, eighteen hundred and ninety-one, entitled, "An Act to repeal timber-culture laws, and for other purposes," do proclaim that there are hereby reserved from settlement or entry and set apart as a public reservation, for the use and benefit of the people, all the tracts of land, in the State of Nevada, shown as the Nevada National Forest on the two parts of the diagram forming a part hereof.

The withdrawal made by this proclamation shall, as to all lands which are at this date legally appropriated under the public land laws or reserved for any public purpose, be subject to, and shall not interfere with or defeat legal rights under such appropriation, nor prevent the use for such public purpose of lands so reserved, so long as such appropriation is legally maintained, or such reservation remains in force.

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 10th day of February, in the year of our Lord one thousand nine hundred and nine, and of the Independence of the United States the one hundred and thirty-third.

[SEAL.]

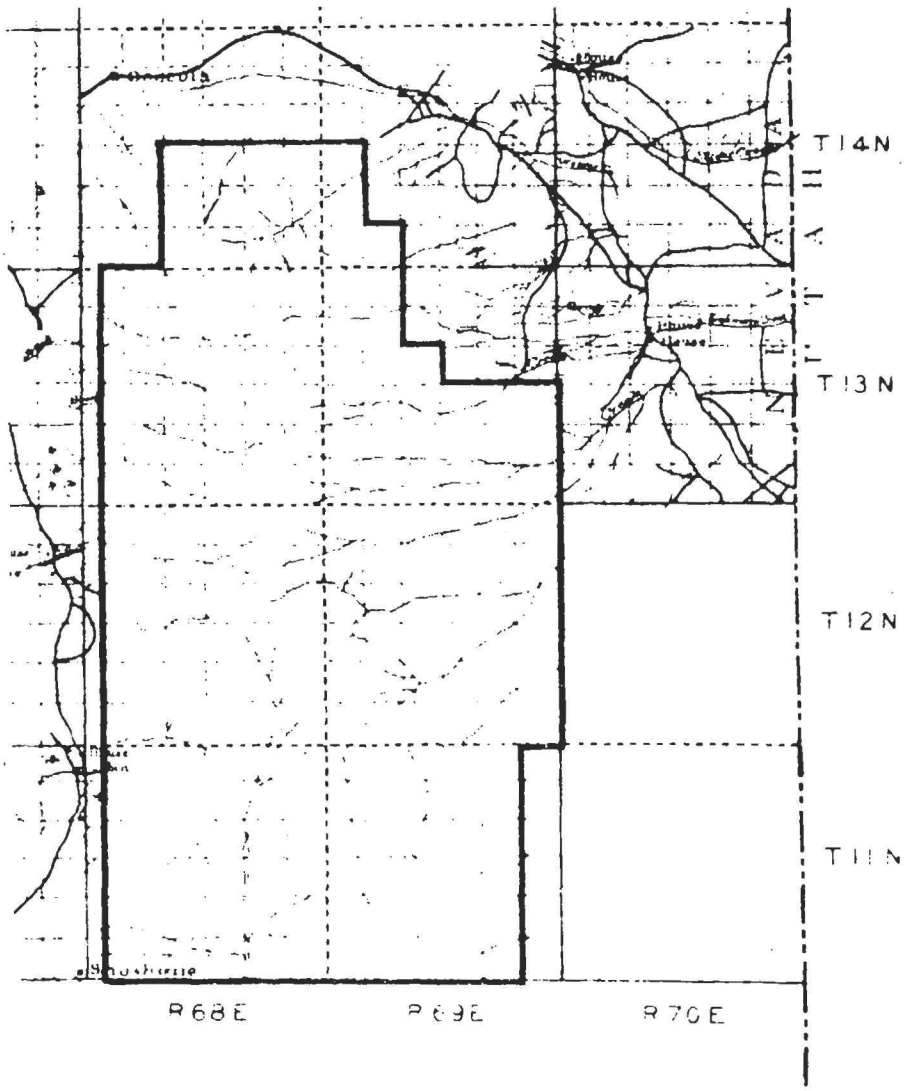
THEODORE ROOSEVELT

By the President:

ROBERT BACON

Secretary of State.

[No. 839.]



PART 1 OF DIAGRAM
(DIAGRAM IN TWO PARTS)

FOREST SERVICE · DEPT. OF AGRICULTURE

109

NEVADA NATIONAL FOREST

NEVADA

MT DIABLO MERIDIAN AND BASE

Compiled in part from GLO plats and FS data

NATIONAL FOREST BOUNDARY

NOTE: This map only shows the Snake Division.

APPENDIX Q

NEVADA NATIONAL FOREST

(SECOND PROCLAMATION)

By the President of the United States of America

A Proclamation

WHEREAS it appears that the public good will be promoted by adding certain forest lands to the Nevada National Forest, within the State of Nevada, and by eliminating therefrom certain other lands;

Now, therefore, I, WILLIAM H. TAFT, President of the United States of America, by virtue of the power in me vested by the Act of Congress approved March third, eighteen hundred and ninety-one (26 Stat., 1095), entitled "An Act To repeal timber-culture laws, and for other purposes," and also by the Act of Congress approved June fourth, eighteen hundred and ninety-seven (30 Stat., 11–34), entitled "An Act Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, eighteen hundred and ninety-eight, and for other purposes," do proclaim that the boundaries of the Nevada National Forest are hereby changed and that they are now as shown on the diagram forming a part hereof.

The withdrawal made by this proclamation shall, as to all lands which are at this date legally appropriated under the public land laws or reserved for any public purpose, be subject to, and shall not interfere with or defeat legal rights under such appropriation, nor prevent the use for such public purpose of lands so reserved, so long as such appropriation is legally maintained, or such reservation remains in force.

The lands herein eliminated from the Nevada National Forest are hereby withdrawn for classification under the Act of June twenty-fifth, nineteen hundred and ten (36 Stat., 847), and will, when compatible with the public interests, be restored to settlement and entry under the laws applicable thereto on such dates as shall be fixed by the Secretary of the Interior and after such notice as he may deem advisable.

This proclamation shall not prevent the settlement and entry of any lands heretofore opened to settlement and entry under the Act of Congress approved June eleventh, nineteen hundred and six, entitled "An Act To provide for the entry of Agricultural lands within forest reserves."

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this twenty-eighth day of October, in the year of our Lord one thousand nine hundred and twelve, and of the Independence of the United States the one hundred and thirty-seventh.

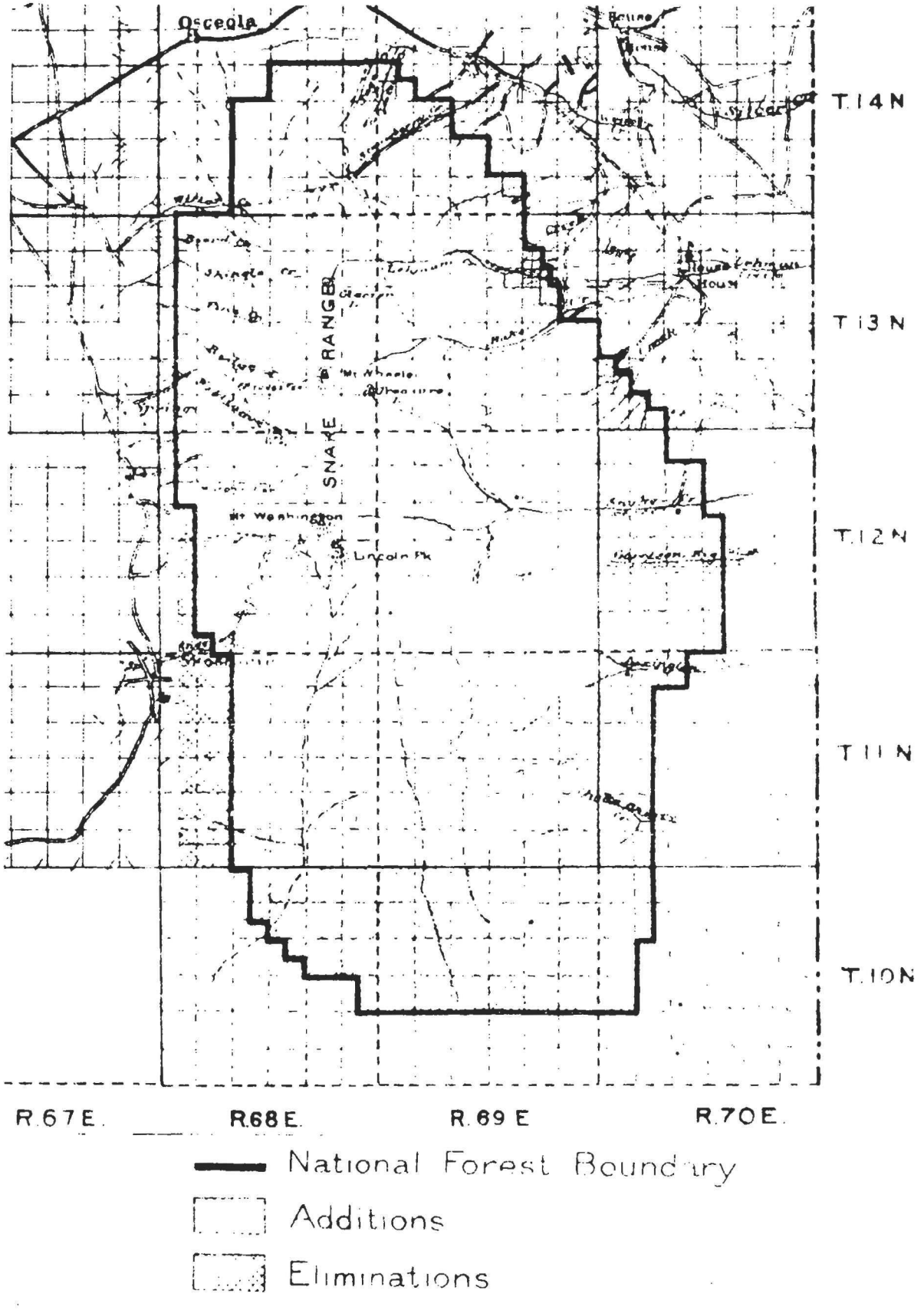
[SEAL.]

WM H TAFT

By the President:

P C KNOX

Secretary of State.



NOTE: This map only shows the Snake Division.

APPENDIX R

NEVADA NATIONAL FOREST

NEVADA

(THIRD PROCLAMATION)

By the President of the United States of America

A Proclamation

WHEREAS, it appears that the public good will be promoted by excluding certain lands within the State of Nevada from the Nevada National Forest, and by restoring the public lands subject to disposition in the excluded areas in a manner authorized by the Act of Congress approved September thirtieth, nineteen hundred and thirteen (38 Stat., 113), entitled "An Act To authorize the President to provide a method for opening lands restored from reservation or withdrawal, and for other purposes";

Now, therefore, I, WOODROW WILSON, President of the United States of America, by virture of the power in me vested by the Act of Congress approved June fourth, eighteen hundred and ninety-seven (30 Stat., 11 at 34 and 36), entitled "An Act Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, eighteen hundred and ninety-eight, and for other purposes", do proclaim that the boundaries of the Nevada National Forest are hereby changed to exclude the areas indicated as eliminations on the diagram hereto annexed and forming a part hereof.

And I do further proclaim and make known that in my judgment it is proper and necessary, in the interest of equal opportunity and good administration, that all of the excluded lands subject to disposition should be restored to homestead entry in advance of settlement or other forms of disposition, and pursuant to the authority reposed in me by the aforesaid act of September thirtieth, nineteen hundred and thirteen, I do hereby direct and provide that such lands, subject to valid rights and the provisions of existing withdrawals, shall be opened to entry only under the provisions of the homestead laws requiring residence, at and after, but not before, nine o'clock A. M., standard time, on the sixty-third day after the date of this proclamation, and to settlement and other disposition under any public land law applicable thereto, at and after, but not before, nine o'clock A. M., standard time, on the seventieth day after said date. Prospective applicants may, during the period of twenty days preceding the date on which the lands shall become subject to entry, selection or location of the form desired under the provisions of this proclamation, execute their applications in the manner provided by law and present the same, accompanied by the required payments, to the proper United States land office in person, by mail, or otherwise, and all applications so filed, together with such as may be submitted at the hour fixed, shall be treated as though simultaneously filed and shall be disposed of in the manner prescribed by existing regulations. Under such regulations conflicts of equal rights will be determined by a drawing.

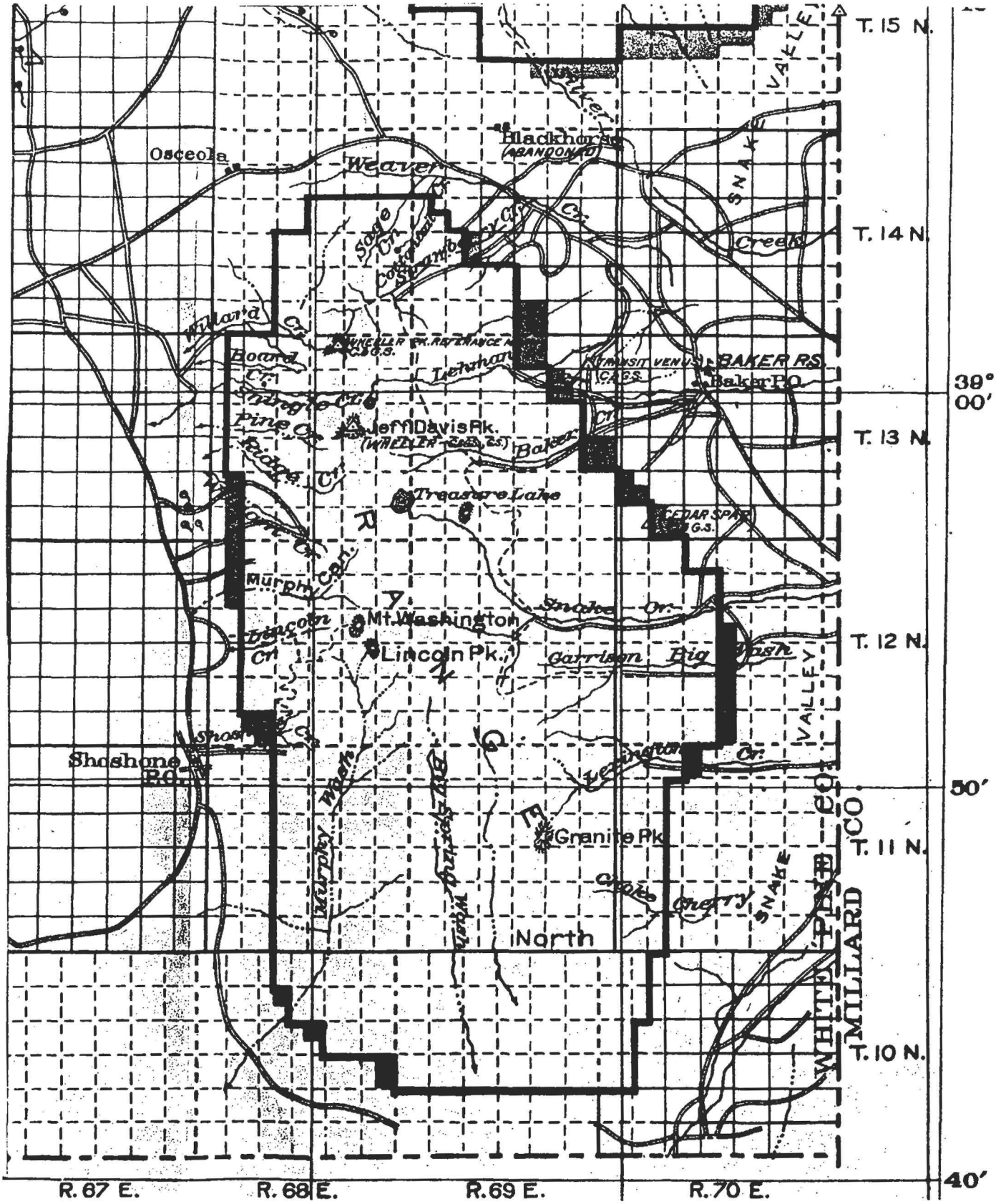
Warning is hereby given that no settlement initiated prior to seven days after the date for homestead entry will be recognized, but all persons who go upon any of the lands to be restored hereunder and perform any act of settlement thereon prior to nine o'clock A. M., standard time, on the seventieth day from and after the date hereof, or who are on or are occupying any part of said lands at such hour, except those having valid subsisting settlement rights initiated prior to withdrawal from settlement and since maintained, and those having preferences to make entry under the provisions of the act of Congress approved June eleventh nineteen hundred and six (34 Stat., 233), entitled "An Act To provide for the entry of agricultural lands within forest reserves", and Acts amendatory, will be considered and dealt with as trespassers and will gain no rights whatever under such unlawful settlement or occupancy; Provided, however, that nothing herein contained shall prevent persons from going upon and over the lands to examine them with a view to thereafter appropriating them in accordance herewith. Persons having prior settlement rights or preferences, as above defined, will be allowed to make entry in accordance with existing law and regulations.

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE this twenty-fifth day of January in the year of our Lord one
[SEAL.] thousand nine hundred and nineteen, and of the Independence of the United States the one hundred and forty-third.

WOODROW WILSON

By the President:
FRANK L. POLK
Acting Secretary of State.


T. 15 N.
T. 14 N.
T. 13 N.
T. 12 N.
T. 11 N.
T. 10 N.
39° 00′
50′
40′
R. 67 E.
R. 68 E.
R. 69 E.
R. 70 E.
Osceola
Weaver
Blackhorse
(ABANDONED)
SNAKE VALLEY
Creek
Sage Cr.
Willard Cr.
Board Cr.
Lehman
BAKER P.S.
Baker P.O.
Jeff Davis Pk.
Baker
Treasure Lake
Murphy Cr.
Mt. Washington
Lincoln Pk.
Snake Cr.
Garrison
Big Wash
Shoshone P.O.
Granite Pk.
Choke Cherry
North
WHITE PINE CO.
MILLARD CO.

APPENDIX S

HISTORY OF BIG WASH GRAZING ALLOTMENT TO 1939

As far back as any record or local history has it, this allotment has been used exclusively by the owner of the Big Wash ranches. These ranches have changed hands but few times and it has been their right from the inception of the forest service and since under regular permit to graze this allotment exclusively. However, one of the present ranch holders in Big Wash, H. M. Osborne, who at that date controlled the Big Wash permit, saw fit to sell his Lexington properties and the stock which grazed on his permit to J. P. Johansen and Lola Heckethorn. Johansen and Heckethorn never were able to satisfactorily graze this allotment because of the problems presented by its rough character and lack of water. The numbers permitted were such that they could not afford to graze it, hiring a camp tender and herder for such a small number. Their first and second year use under this set-up discouraged them to the point that they sold the property to a man who wished to run a small number himself. It is understood that the lands which changed hands with this permit although at one time had some agricultural possibilities, are now practically valueless even as commensurate property.

The first buyer, one Lewis Symons attempted to run a small band on this area but even under personal supervision his losses were such that the contract was foreclosed by Johansen and Heckethorn. Then again in 1937 the property was sold to a partnership, Manis and Ides. These partners made an attempt to run a small band on this allotment but met with such heavy losses, or anticipated such heavy losses when they became better acquainted with the range, that they lost heart and the properties again reverted back to Johansen and Heckethorn. In 1938, Johansen and Heckethorn, not wanting anyone to use this range for fear that it might set a precedent and prevent them from making a favorable sale of range properties and permit connected with this allotment, wanted to pay the grazing fees on this small permitted number and not run sheep. As the season was so far advanced when these arrangements were proposed, it was felt best to let the situation go but it was proposed at that time to not allow such details to be worked out for the 1939 grazing season but insist that use be made of this range by the permit holder or non-use taken that the Forest Service might under temporary permit allow some other qualified applicant to use this range. Throughout this time, Osborne of Big Wash has run a few head of cattle and some 200 to 300 head of sheep. It has been known that trespass has been taking place as his private lands are poorly fenced and the sheep cannot stick their heads across the fence without being on Government lands, however, as the value of the forage in this vicinity is so little and as it was realized the necessity for this ranch property to have grazing rights, no official trespass was taken and it is felt that no willful or intentional trespass took place. However, it is evident that the Big Wash properties should never have been divorced from the

grazing privileges in the Big Wash allotment. The Osborne people for years (35 years or so) have used Big Wash allotment and know it in every detail like no one else does. They in the early history of the use of this allotment, successfully grazed it with various numbers of stock and it is felt that if the opportunity is ever presented, that the grazing rights of this allotment can again be returned to the commensurate lands which are in Big Wash, that such should be done and that any future transfers of this range from the commensurate properties in Big Wash should be scrutinized very carefully before being approved by the Forest Service.

Osborne realizes his mistake in selling this allotment and in the future somearrangements might be effected which will enable a deal to be made by the Osbornes and Johansen and Heckethorn. If such is ever presented to the forest service, it should be favorably received. As has been stated, it has been proposed that this allotment be definitely used by Johansen and Heckethorn in the 1939 season or adjustments made to insure this allotment's use.

Range Allotment Management Plan, Nevada National Forest, Big Wash Allotment – S&G, August 5, 1939, Sylvan D. Warner, Forest Ranger, Historical Files, USFS, Ely.

APPENDIX T

HISTORY OF STRAWBERRY GRAZING ALLOTMENT TO 1939

This allotment was formerly a portion of the G. S. Robison & Sons allotment, which allotment consisted of Strawberry Canyon below the mill setting and Burnt and Water Canyons between Strawberry and Lehman Creeks. Also the east portion of Weaver Creek lying within the Forest Boundary and east of Sage (or Sage Hen) Creek. This allotment in 1910 was used by 3400 head of sheep. Use was made of this range with about an average of 3200 head of sheep up to and including the year 1928.

In 1918 an a letter written by Fred L. Mott, Forest Supervisor, and addressed to George C. Larson, the Supervisor granted the perfecting of an exchange of allotments in the then Lexington allotment. This change consisted of the voluntary relinquishment by R. T. Swallow of that portion of the Big Springs Wash range lying above the Forks and east to the main divide. In this letter, it was pointed out by the Forest Supervisor that this was being allowed in order to make an exchange on the northern end of the Snake Division with Marriott and Cahoon. This exchange was to be that portion of Weaver Creek lying within the Forest Boundary east of Sage (Sage Hen) Creek. This would be given to Marriott and Cahoon to give them sufficient range to carry their then allotted number of sheep. In exchange for this portion of the Weaver Creek drainage, George S. Robison & Sons (B.H. Robison in charge) was to receive that portion of the Swallow Brothers allotment lying north of the Forks of Big Springs Wash and east to the Main Divide. This area of the Swallow Brothers allotment was relinquished by Mr. R. T. Swallow on his own volition when he admitted that his sheep did not graze on it at any time and but very few of his cattle reached the upper edge of this area during the winter months. In this letter above mentioned, he expressed his willingness that it be used by other permittees.

In 1921, it was recognized that the George S. Robison & Sons' permitted numbers were in excess of the number the range would carry. About this time, attempts were made to reduce numbers to the proper carrying capacity of the range. Tothis end, on recommendation of Ranger Quate, permitted numbers were reduced to 2200 in 1922.

About this time, records indicate that George S. Robison & Sons was dissolved and each of the sons were given a portion of the partnership permit. In 1923, that portion of the former George S. Robison & Sons permit lying in the north end of the Snake division was transferred to George W. Robison. In 1923

this amounted to 563 head. Whether this exchange was a lease or purchase was not indicated in the local files. Accordingly, this portion of the former range was administered by George W. Robison up to and including the season of 1935 with an average of about 600 head of S. & G. on the drainages of Strawberry, Mill Creek, Burnt Canyon and all of Lehman Creek drainage above the campground.

Records on file under Robison, G.S. indicate that the several sons who had charge of the sheep at different times handled the herds such that at least three different rangers found it necessary to instruct them to not bring the sheep to a common bed ground and that salting on water would have to be discontinued. However, under memorandum of June 11, 1932, Ranger Taylor instructs Orvis Robison to handle the Lexington herd in the following manner:

> "Most of the water rights on the G. S. Robison allotment are springs of which some of them are troughed. I would recommend salting at these watering places, but put the salt in troughs. The G. W. Robison allotment is watered better and thesalt should be used away from the water and the troughs moved often."

(The G. W. Robison allotment is now part of the Strawberry allotment). This memorandum is approved and signed by Supervisor C. J. Olson.

Local records indicate that this permit ranged from about 650 head to its present number of 555 head which numbers were set up in 1935. This allotment remains largely the same since it was first set up in 1919 for the Robison operators.

Portions of this allotment have been grazed in common with cattle since the inception of the Forest Service. In 1935, an area a mile square was withdrawn for the Lehman Caves National Monument. Similarly in 1934 a recreation area in Lehman Creek was withdrawn from grazing use. This recreation area, though not covering such a large area, controls quite a little piece of the middle portion of Lehman Creek proper.

Ever since the non-use of portions of the Baker Creek allotment has been taken by the Gemmel Livestock Company and their successors, Robison Brothers have been granted the use of portions of Baker Creek to use in connection with their Strawberry allotment by the ranger in charge. This practice has been followed

as nearly as I can determine, since about 1924. However, such use apparently did not accomplish the purpose for which it was intended as it seems that the Robison Brothers or George W. Robison for a period of time merely shifted their operations from the low range formerly necessary to use, to this Baker portion granted and no relief in high areas was attained.

Under the Robison Brothers' management, this allotment has been grazed in conjunction with a portion of the former Weaver Creek allotment, making the numbers grazed on whatis now the Strawberry allotment about 1100. In 1937 a range inspection of this allotment definitely pointed out the over grazed condition of the Lehman basin unit. This basin has been an ideal place to graze sheep and the operators as well as the herders have been inclined to hold sheep in this area considerably longer than has been best for the forage concerned. This is also true of the Windy Camp unit at the head of Strawberry Canyon (now grazed in connection with the Weaver Creek allotment).

The withdrawal of the above mentioned lands from grazing use has influenced the operators to not attempt to use forage adjacent to these lands for fear of trespass. From 1935 to 1938 at least,no use was made of the lower Lehman Creek unit. This unit, conservatively, contains about five to six herd days feed.

The use of the Big Pine unit of this allotment is confined to watering on the Baker Creek side. This has been allowed for several years while the Baker allotment has been in non-use and temporary use status.

In the lower Strawberry Creek unit is a poison area on which considerable loss has been experienced. Attempts by the Bureau of Animal Industry and Plant Industry to determine source of poison have brought no results. Losses ranging from a few head to as high as 600 head have been experienced at various times. The operator has this area pretty well in mind through experience over a period of time and limits his herders out of this area quite closely.

Pressure on upper areas can no doubt be accounted for by these various factors--poison area in Strawberry, recreation area in Lehman Creek and National Monument withdrawal.

Range Allotment Management Plan, Nevada National Forest, Strawberry Allotment – S&G, July 20, 1939, Sylvan D. Warner, Forest Ranger, Historical Files, USFS, Ely.

APPENDIX U

HISTORY OF SWALLOW GRAZING ALLOTMENT TO 1939

This allotment in practically its present bounds has been used by Swallow Brothers since the inception of the Forest. In 1910 they were granted a permit to graze on this allotment 250 head of cattle and 2600 head ewes. This allotment varied somewhat through the years until about 1919, at which time Swallow Brothers had permitted 1600 head of sheep for a four month period and 300 head of cattle. In and about 1919, the portion of range lying from Williams Creek south to Swallow Creek (Water Canyon) was set aside as an exclusive cattle unit. Swallow's cattle grazed this range in common with cattle grazed by A. C. Kirkeby. This continued until 1924 at which time Kirkeby transferred to the east side of the Snake Division. At this time, Robison Brothers were moved south to the present boundary and Swallow Brothers were given the exclusive use of the section lying between Williams and Swallow Canyons. This fact should be borne in mind when future discussions of the Swallow Brothers allotment are made as Swallows claim to have had exclusive use of this range throughout the period of the Forest Service. However, close perusal of records will indicate that this portion mentioned was set aside for Kirkeby in or about 1919 to 1924, and was given to Swallows' exclusive use after that date so that any disagreement as to the fact that they received nothing when Kirkeby moved to the east side is to the contrary.

Grazing of cattle on the south end of this allotment prior to the organization of the Forest Service is reported to have been exceedingly heavy at various times. Swallow Brothers had a large outfit and run great numbers upon public domain.

In or about 1924, the boundary was established at its present location and the permit changed hands from Swallow Brothers to R. T. Swallow. Under R. T. Swallow's management, the allotment was grazed with sheep to the extent of 1600 head with 200 head of cattle, from 50 to 100 head being issued annually for year-long use. This was proposed to take care of winter drift. In 1931 the first reference is made in the files to possible mis-management by R. T. Swallow's operators. In a statement dated April 30, 1931 Ranger Taylor, under grazing instructions, approved by C. A. Bean, Forest Supervisor, states: "I have noticed that salt troughs are common and most of them are in permanent camps. Salt is kept in them continually which goes to show that the sheep are brought to camps. These salt troughs shall be moved around often so not to draw the sheep to a common salting place."

In 1932, Taylor in grazing instructions approved by C. J. Olson, again points out his belief that sheep were brought to common bed grounds. But he further states: "Nearly all the watering places are around springs, most of which are troughed. I would

recommend you salt your sheep at these watering places, but put the salt in troughs. This, in my estimation, will save a lot of trailing of the sheep." (Dated June 11, 1938).

Under a memo dated June 13, 1938 and signed by C. J. Olson, it is pointed out that "the salting of sheep should be done away from water and on rocky places where the least damage will occur." Mr. Olson further states: "I told Mr. Azuquey that he should see to it that his stock were grazed on the low range until further arrangements were made. They had not already been made by Rangers Taylor and Moore. I told him that it would be necessary for him to see that his herders utilized the range more evenly and that the stock be removed from watering places not to exceed an hour or two after they were driven in for water. It is the practice of a lot of sheep herders to shade the sheep up on the water all day and we must exert our best efforts and ask for full cooperation of the Permittee in avoiding this".

"Mr. Azuquey admitted that his herders had not properly cared for the allotment last year and stated that he would give them definite instructions to see to it that they lived up to them. It is my intention for them to handle the range a lot better and must insist upon their doing it."

Observations made by the ranger in charge when first coming on this district indicated that the Swallow sheep leased to Azuquey were not being handled properly. Every effort was made in 1937 and 1938 to get proper handling of this allotment but cooperation from Azuquey was not attained. It was pointed out to Swallow Brothers (George H. Swallow) that he stood to take a penalty reduction or entire loss of his permit if future instructions could not be carried out. The lease to Azuquey had not been working out so satisfactorily and it is felt that in the next grazing season radical change in management will be made.

In 1937 after a period of depression and drouth, R. T. Swallow took bankrupcy and the place was saved in the names of his sons, Swallow Brothers. In 1937, George Larson, Supervisor, obtained a voluntary transfer reduction from R. T. Swallow's two sons, (Swallow Brothers), a considerable S & G reduction on their entire permit, both Snake and Schell Divisions. This reduction reduced the pressure on the Swallow allotment to 1155 sheep and increased the C & H permitted numbers from 166 to 200 head of which 100 head were to be grazed during the winter season, the cattle preference on the Schell Creek division being dropped.

Examination of the range indicated that the Basque herders under Azuquey's management used the upper areas (the Highland Ridge) very severely. In fact, this section would appear to be as badly off as any on the Snake division. However, its former condition can only be taken from verbal statements, as the ranger in charge had never seen it in its original state, but it is believed the area is capable of producing better vegetative cover than now exists.

During the grazing season of 1938, continued conversations were held with Swallow Brothers concerning the legitimacy of their transaction with the Ely National Bank, John Anzquey and themselves and further, it was pointed out that for their best interests, they should get out from under the Anzquey lease. Further, it was suggested that it might be well to consider a change in class of stock grazed. In about 1934, a portion of the original Swallow allotment which consisted of the Cedar Cabin Canyon was voluntarily relocated by R. T. Swallow and given by the Forest Service to Swallow Brothers, in exchange for a parcel of range in Weaver Creek which was to be transferred to Marriott and Cahoon.

The Swallow allotment, other than the section used by sheep which is largely Johns Hollow and Murphy Wash and upper Decathon Canyon, has never been fully utilized because of lack of water. Grass (typical cow forage) must be in somewhat its original condition as use has been very light. Use in Lincoln and Pole Canyon has been made periodically with cattle and control maintained by drift fence built under special use permit. The bucks have been grazing on what is known as the Buck Pasture (unit) which is in and above Swallow Canyon (Water Canyon).

Water developments on this allotment are of highest priority and pursuit of developments has been made consistent with funds available. However, much work yet remains to be done. Use by cattle under winter permit in 1937 gave definite indications that this practice was poor management. Although occasional drift takes place from the winter range up to the low foothills on the forest, this problem no doubt can be handled other than with a full-time year permit. In the winter time, records indicate C. & H. grazing is largely confined to areas previously grazed the preceding summer. This practice defeats the very purpose for which the drift permit was issued.

Range Allotment Management Plan, Nevada National Forest, Swallow Allotment – S&G, August 5, 1939, Sylvan D. Warner, Forest Ranger, Historical Files, USFS, Ely.

APPENDIX V

HISTORY OF SHINGLE CREEK GRAZING ALLOTMENT TO 1939

The biggest portion of this allotment was originally used by Marriott Brothers and was first set up as a grazing unit in 1912. It continued under the Marriott management until 1920, at which time the stock was purchased by the Robison Brothers now of Baker, Nevada. The files indicate that considerable correspondence work took place with the Marriott Brothers in an effort to control the number of permitted stock upon the forest as the Marriott Brothers owned more sheep than they were permitted to run on this allotment during most of the time they had control of this allotment.

In 1919 the north boundary of the allotment was at the ridge south of Board Creek. In 1920 it was moved north to the forest boundary south of Willard Creek. This small change was made at the time Robison Brothers took over the J. C. Cahoon preference. In 1922, the southern portion of this allotment was changed to accommodate a small permit of 525 head of sheep issued to A. C. Kirkeby. However, this permit which was stuck in between Swallow Brothers on the south and Robison Brothers on the north was only used in this location one year, after which the boundary returned to its former status which was the ridge between Pine and Ridge Creeks.

In 1924, Robison Brothers grazed 2834 head of sheep and their allotment was extended from the drainage of Pine Creek south to include the drainage of Ridge Creek and Raise Spring to a point near Hub Mine, this south line to be posted by the Ranger. In 1925 the allotment boundary still read the same, that is, "from a point as posted by Ranger near Hub Mine, north to and including the south drainage of Willard Creek." This section was only a portion of the Robison allotment. Their allotment continued on around the north end of the Snake Division and was bounded by lines contained in the history of grazing use for the Weaver Creek allotment.

The preference in 1925 was still for 2834 head of sheep. In 1926, allotment boundaries and preference numbers remained the same. Local records indicate that the permitted number and allotment boundaries of Robison Brothers remained the same until the year 1931. From 1931 to 1937, the only thing found on file indicating use or history are grazing instructions for the years 1933, 1934 and 1935. These instructions are in the form of a form letter signed by Ranger Taylor and C. J. Olson, Supervisor. No reference is made to allotment boundaries or numbers run. Letters of transmittal indicate that in 1935, the end of the ten year term, a 10% reduction was levied against the Robison Brothers which reduced their permitted number to 2550 which is their present permitted number for what is now the Weaver and Shingle Creek allotment.

In 1937, as no boundaries had definitely been set up in the vicinity of Hub Mine, this area was visited with the Permittees concerned, Doyle C. Robison and George N. Swallow, and this line was posted in agreement with both parties. This was done to carry out the term of the permits dating back to 1934.

A review of local records indicates that since 1920, several local rangers have seen fit to call to the attention of Robison Brothers their bedding of sheep at a common bed ground and their salting at or too near water. A review of the above facts has been made to point out the changes that have been made by the Forest Service in boundaries of allotments belonging to Robison Brothers.

In 1937, the Robison Brothers allotment was divided into two allotments by the ranger in charge. These allotments were called Shingle Creek allotment (described above) and Weaver Creek (described in plan for that allotment). This was done to facilitate the setting up of definite management plans and which allotments break themselves into geographic units.

A review of records on file at the local office indicates that for some time in the past, late grazing has been allowed by either the forest ranger in charge or the supervisor of the forest at that time. In fact, it would seem that this has been a habitual privilege and that practically every season since about 1924, some one to three weeks overgrazing has been permitted on the low portions of this allotment. It is true that this allotment consists of a goodly portion of low, possibly spring-fall range and that this Bitterbrush type of forage can be utilized quite readily in late September and early October, however, such continued use in both summer and fall (under special grant) should be discouraged. Although the nature of the range is very rough and rocky and will somewhat protect itself, this valuable brush type (Purshia tridentata) can only remain in good condition by conservative and proper use.

In 1935 a grant was made to D. R. Kerr of Spring Valley for a permit to graze 22 head of cattle. These cattle to run in common with sheep operated by Swallow Brothers in the north end of their allotment and Robison Brothers in the south end of their allotment. However, in the short time elapsed since 1935, most of the Kerr cattle at some time or the other have grazed on the forest under terms of this permit and it now becomes practically impossible to restrict the numbers on the forest without considerable hard riding and constant attention. The Kerr cattle, since being placed upon the forest, have run practically from Shingle Creek on the north to Williams Creek on the south. They have been known to have been on the forest as early as April 6 and it is reported they have been on as late as November 15. Records show several memos by the ranger in charge concerning this trespass both in permitted numbers and range covered and season grazed. This matter

has been taken up with the owner, D. R. Kerr, several times each season. It is felt that a reasonable amount of effort has been put forth by this Permittee to restrict both the number of his cattle and the numbers upon the forest. However, to date, these efforts have not been sufficient to properly control the distribution and numbers of this Permittee's stock.

It is felt that the construction of the proposed Spring Valley drift fence will be a big step toward correcting this problem. Robison Brothers at no time have made any formal complaint of the numbers nor season of use taken by the Kerr cattle, but inspection has indicated that they have traveled upward with the retreating snow, trampling out many of our choicer forage sites. This allotment is so rough and rocky that there are only a few areas on which cattle will normally run of their own accord. Many of these areas will naturally become critical areas if this permit continues in the future. To date therefore no known critical areas as a result of the early use or increased numbers of the D. R. Kerr stock.

This allotment is not considered to be in a very bad shape as a whole, as the very nature of the cover (rough granetic boulders) protects the forage from excess trailing. However Shingle Creek Basin at the head of Shingle Creek is perhaps the most favorable grazing site on the allotment and offers an enticing morsel to both the sheep from a forage standpoint and the herders in reference to easy herding. Accordingly this area has no doubt had more use than is proper, however, examinations made in 1937 would indicate that there are many other places on other allotments more severely overgrazed than is this basin. However, care should be exercised in the future use of this unit that proper vegetative cover can be maintained.

Range Allotment Management Plan, Nevada National Forest, Shingle Creek Allotment – S&G, August 5, 1939, Sylvan D. Warner, Forest Ranger, Historical Files, USFS, Ely.

APPENDIX W

CATTLE SALTING PLAN, SNAKE DIVISION, NEVADA NATIONAL FOREST, 1918

Designation	Name	Cattle or Horses	Salt
A	Swallow Bros.	268	1608
B	Albin C. Kirkeby	40	240
C	G. S. Robison & Sons	50	300
D	G. W. Robison	65	390
E	F. J. Parker	25	150
F	Mrs. C.W.Heusser	10	60
G	L. Snyder	30	180
H	P. W. Baker	30	180
I	P. M. Baker	100	600
J	G. W. Gonder	90	540
K	M. H. Osborne	60	360
L	W. F. Fowler	25	150
M	E. E. Fowler	10	60
	13	803	4818

Swallow Bros. Who run 268 cattle on this division are designated A. This permit is mainly to cover cattle which drift into the hills, and as a great deal of their allotment is dry and only suited for winter grazing when cattle water on snow it is difficult to write a plan which would be fair to all parties especially as I am not familiar with grazing conditions on this unit. Therefore I shall familiarize myself with the country as soon as it is possible to get into the hills and learn where the cattle range and where salt can be placed to

best advantage. In the meantime I shall insist on sufficient salt being put out to the stock according to Mr. Swallows usual custom, until I can write a more comprehensive plan to be followed.

Albin C. Kirkeby with 40 cattle has been designatedB. He will salt as follows: May 1 40 lbs on the slope north of the mouth of Williams creek, ~~40 lbs on the ridge between Dry and Williams canyons near the foothills.~~ June 15, 40 lbs near Flume on Williams creek, ~~40on ridge south of Williams cr.~~ Aug 15, 40 lbs at head of Williams creek and ~~40 on ridge near head of Dry creek.~~

Geo. S. Robison and Sons are designated C. They will salt as follows: May 1, 50 lbs in mouth of Strawberry canyon 50 lbs at Springs in the Juniper east of Sagehen and south of Weaver creek. June 15, 50 lbs near tunnel where Osceola ditch leaves Strawberry drainage and 50 lbs at mouth of large canyon leading south about a mile below the sawmill. Aug 15, 50 lbs on ridge one mile south of the sawmill and 50 at head of Strawberry canyon.

Geo. W. Robison with 65 head is designated D and will salt as follows: May 1, May 1 50 lbs in mouth of Quinn canyon, 80 lbs in Lehman canyon ½ mile from the mouth.

June 15, 50 lbs on ridge east of Quinn canyon and 80 lbs on summit between Pole and Quinn canyons. Aug 15., 50 lbs at head of Quinn canyon and 80 lbs at head of Pole canyon.

F. J. Parker designated E runs 25 cattle and will salt as follows: May 1 50 lbs on the ridge between Burnt canyon and

Lehman creek at a Post marked E 1. June 15 50 lbs in Lehman canyon near intake of Osceola ditch. Aug. 15 50 lbs near lake in Lehman canyon.

Mrs C.W. Heusser With 10 cattle is designatedF. Will salt as follows: May 1, 35 lbs of salt on ridge north of Mill creek above her homestead. July 1 35 lbs at head of Mill creek canyon.

L. Snyder with 30 cattle is designated G and will salt as follows; May 1 , 60 lbs on the ridge above his place and nort of Lehman creek. June 15, 60 lbs ½ mile below cabin in Lehman canyon. Aug 15, 60 lbs in Lehman canyon halfway between cabin and Lake.

P.W. Baker with 30 cattle has been designated H and will salt as follows: May 1 60 lbs on ridge south of Lehman cave and north of Baker creek. June 15, 60 lbs on summit between Pole canyon and Baker creek. Aug 15, 60 lbs in same place .

P. M. Baker with 100 head is designated I and will put out salt as follows: May 1 100 lbs on ridge between Pole canyon and Baker creek, 50 lbs On ridge south of Lehman creek below caves and 50 lbs at forks of Baker creek.

June 15 100 lbs on ridge ¼ mile north of meadows on S. F.Baker creek, 50 lbs on ridge south of Snake creek just below sawmill 50 lbs on ridge ½ mile northwest of sawmill. Aug 15, 100 lbs on ridge between forks of Baker creek, 50 lbs near Deer Lake in Snake creek and 50 lbs on saddle between Baker an d Snake cr.

G. W. Gonder, designated J has 90 cattle and will salt as follows: May 1 50 lbs in mouth of Snake creek 1 mile above

Matthews claim, 50 lbs on ridge near road from Big wash to Bonita milland 80 lbs between Granite and Snake canyons, June 15 90 lbs on ridge between North and South forks of Snake cr. and 90 lbs on ridge between S. F. Big Wash and Lexington canyon. Aug 15 on ridge south of Deer lake in Snake canyon and 90 lbs at head of S. F. Big Wash.

M. H. Osborne with 60 cattle is designated K . Will salt as follows: May 1, 60 lbs. on ridge north of Big wash opposite lower end of Madsen claim and 60 lbs near drift fence in N.F. which is dry. June 15, 60 lbs on ridge near Maple Spr. ~~and 60 lbs~~ and 60 lbs near narrows in N.F. Aug. 15 60 lbs on high ridge between north and south forks and 60 on ridge east of maple Spring.

W. F. Fowler has 25 cattle and is designated L. Will salt as follows: May 1, 50 lbs on ridge south of Big wash opposite lower end of Madsen claim. June 15, 50 lbs on tr trail from forks of Big Wash to Lexington. Aug. 15, 50 lbs on ridge south of old sawmill in south fork of Big Wash.

E. E. Fowler with 10 horses will place 60 lbs on ridge south of his claim on May 1.

APPENDIX X

GRAZING PLANS FOR BONITA BASIN AND STRAWBERRY CREEK DRAINAGE, 1927

BONITA BASIN

Mr. Glen A. Bellander,

Baker, Nevada.

Dear Sir:

In accordance with our discussion and agreement of yesterday relative to the plan of grazing your allotment this year, the following plan is made:

The deferred area on your allotment is all of Boneta Basin. That area is not to be grazed until after seed maturity, about September first.

You are to graze Horse Heaven before starting up Snake Creek, the object being to graze that part of the range while there is sufficient snow there to water on, if there is sufficient snow after the opening of the grazing season. If the snow on Horse Heaven is sufficient to last for some time, you are to graze what low range you can, without interfering with Rudolph Merchun, before grazing Horse Heaven. After grazing Horse Heaven you are to start up Snake Creek, grazing the range as you go and so as to make it last until Boneta Basin is ready for grazing.

Your particular attention is called to the stipulations in your grazing permit, all of which should be thoroughly understood by you. Your herder should be fully instructed in the handling of your sheep so as not to violate any of the terms of your permit.

Very truly yours,

Geo. E. Moore

Forest Ranger.

STRAWBERRY CREEK

Robison Brothers,

Baker, Nevada.

Gentlemen:

In accordance with agreement made between Jas. F. Robison and myself, the deferred area on your allotment for this year is the same as it was last year, namely: all of your allotment within the Strawberry Creek drainage except that portion above the old log chute. The deferred area is not to be grazed until after seed maturity, about September first.

Upon entering your allotment you should aim to graze the lower range as long as possible in order to give the higher range a chance to grow, then gradually work to the higher range.

All salting should be done out away from the water. On the tops of ridges and other places suitable

for bed grounds are the preferred places. Any salt troughs used should be moved frequently.

Your particular attention is called to the stipulations in your grazing permit, all of which should be thoroughly understood by you. Your herders should be fully instructed in the handling of your sheep so as not to violate any of the terms of your permit.

Very truly yours,

Geo. E. Moore

Forest Ranger.

Historical Files, USFS, Ely.

APPENDIX Y

GRAZING ALLOTMENT DATA, SNAKE DIVISION, NEVADA NATIONAL FOREST, 1938

Swallow Allotment S&G and C&H: Swallow Bros. permittee 1165 S&G, 300 C&H.

The Swallows, through John Ausquey, placed only 785 E/L on the Forest this past season. They were given permission to go on some two weeks early and get feed that could be reach in John's Wash with water from the melting snow. They came off the allotment in Williams Canyon on the 31st of August two weeks early. I did'nt get to check the use on the deferred unit which was upper Murphey but I believe with the small numbers grazed this high range should have gotten a little rest.

I have discussed with both you and the former Supervisor all the information that I have been able to gather concerning the ownership of the sheep grazed under the Swallow permit. As pointed out there is no doubt in my mind the fact that the Swallow boys do not own the sheep but proving this in the eyes of a court might prove dificult. It is my belief, however, that their cattle is in their own name, right and title. This might have some bearing on their recent request to have their sheep preference changed to cattle.

The Swallow cattle were placed on the forest on the 2nd day of June (115) and grazed in the lower portion of Big Springs Wash where the water was running. This condition had not been possible for years previous for the water had not run as far down the wash before for 22 years. Additional numbers were put on at a later date to bring the total up to 165 head. The cattle were in charge of a rider who kept them pretty well in the areas designated on my trip in there at the time the cattle were put on. Some of the cattle got up into the upper part of Cedar Cabin which is on the Robison allotment and will have to be prevented in the future. It is my belief that sufficient salt was keep out in designated places all though no particular salt plan has been worked out. It has been my intention to make up this plan after I had a chance to see what the natural drift of the cattle would be.

The main problem on this allotment will be the grazing of the winter permit if cattle are run in the summer. This will call for attention so that the feed in the low hillsnext to the south boundary can be left for the grazing of the 100 head in the winter. This particular winter Swallows have asked for only 50 head for two months while last year they ran 350 head for two months. Close spring and fall inspections will be necessary to check on the possible use this winter to come and the distribution over the area during the next winter season. I have had no occassion to question numbers put on the forest by the Swallows but care should be excersised to see that only the permitted numbers are run as they have considerable numbers over their preference, most of which range adjacent to the south boundary during the winter on Public Domain.

This is a big allotment and should weal carry the allotted numbers in spite of the pressure that was formerly given this allotment before considerable feduction was made in the transfer.

S&G

Lexington Allotment:-/ G. S. Robison Estate permitte 1200 head preference.

In the main this allotment is in good shape. The high ranges in and around the Granite peak will need some relief. This is a browse range and has been on the improve for some ten years judgeing from the condition of the major browse species. Mr. Larson last October in going over part of this allotment said that he could not believe the improvement that had been made in some 15 years since he had been on the allotments2 Drys have been using the range for the past four years. Mr. Robison has been coming on the allotment late in July with about twice the permitted number of sheep and staying on only long enough to use the permitted sheep days. It is not known for sure whether this kind of use has been the reason for the increase of in the forage or if it is the class of sheep.*(drys over E/L)

Mr. Henry Osborne,the old timer in Big Wash,told me that while most of the range on this allotment was in good shape,he would agree,he thought that the high range was little if any better than it formerly was years ago.

It is the intention of Mr D.C.Robison to place a band of E/L on this allotment for the season 1939. This proceedure will be watched with interest to see the affect on the forage as compared to the same forage under use by drys later in the season.

The grazing instruction for last season were followed very closely by the herder on this allotment. However, this band in particular is salted on water as has been pointed out before. The aguements extended by Mr. Robison for this practice are interesting and bear some weight, which has been my reason for not forcing the issue in this practice. At the training camp some two or three hours was given to the discussion of this practice and while the majority were against it some were still of the opinion that in some cases on dry range with little water it had its merits. I would appreciate the opportunity to discuss this further with you and getting your opinion on this practice before the opening of the 1939 season.

Big Wash Allotment:S&G:- J.P. JOHanson permitte preference 410 head.

This allotment was not used during the 1938 grazing season. Mr. Johanson paying part of the grazing fee - this later cancelled because of check being returned for lack of funds.

Some use should be made of this allotment by temperary permit to some qualified applicant if Mr. Johanson is going to take none-use.

This range is rough and hard to graze but sufficient feed is on hand to carry the permitted number very well. It is my intention to issue a free use permit to both Mr. Calico and Mr. Osborne residing in the Big Wash for the grazing of a few head of their Milk stock in the North and South Forks of this canyon.

Mr. Osborn has been talking of a special use permit for the 40 acres of segebrush land lying between his two homesteads. This land is of little

value as agricultural land and the permittee on this allotment can not use this section so I can see no reason why such a permit cannot be granted Mr. Osborn. It might be suggested that this permit be granted with out charge in exchange for the use of the portion of his patented land that the road pa[illegible]es over going up the North Fork of the Big Wash. This road was built by Thomas Dearden in co-operation with the F.S. some years ago and the old man claimes he protested it going over his land and so posted it agains use for some time but got no place with it.

Snake Creek Allotment C&H Josheph Gruden permittee 30 head preference.

The construction of the zone drift fence in this canyon certainly helped in the handling of the cattle in this allotment. The fence held the stock below Granite Basin until the 25th of June when it was opened and the stock allowed above. I would say that this has solved our problems inregard to the control of this stock on the lower range until the upper range is more able to carry the cattle on the upper meadows. Mr. Gruden grazed 20 head on the forest this past season. He intends to take up his winter permit and run the full 30 head in Snake Creek the season of 1938.

Mr. Grudens stock are only average grade stuff and he is very attentive in handling the stock to the best advantage of bothe the range and the cattle. He has been salting on the slopes where he tried to get the stock out of the bottoms. No salting plan has been worked out for this permit and no doubt such should be done at the first opportunity.

I feel that Mr. Gruden does every thing that is asked or suggested and feel that the cattle should be taken up into the South Fork every chance that he has. He has agreed to this and I'm sure will make every effort to get them up in that section and try and hold them if possible. The feed is good but they have never been up there before this year.

Snake Creek Allotment S&G:- Albin C. Kirkeby permittee, preference 525 head.

Mr. Kirkeby again took non-use on this permit for the season 1938. Mr. John Ausquey run the Kirkeby sheep under lease on his private lands and on the P.D.

You will recall that the advisory board of the Nevada Forest Woolgrowers Ass[illegible]n were to have met last August and recommended what should be done on Kirkebys request that he be moved back on the west side of the mountain so he could operate his sheep closer to his home ranch. This meeting was set and then in a last talk with Kirkeby he agreed that there wasn't much use to him moveing over because the range he formerly held is very rough and has little feed. He agreed -see my memo on this- that he would withdraw his request for change of allotments and by the spring of 1939 would give us definite information concerning his intentions to use the Snake Creek Range. In a telephone conversation with him this morning he said he would have some decision on the matter within 10 days and would advise us of any arrangement he would make for the use of this range.

I believe that with the possible exception of Granite Basin the Snake Creek allotment is in quite good shape as a results of the Kirkeby non-use but I do believe that some definite use should be taken of the range by Kirkeby in 1939 or the permit cancelled and consideration given to some of the many other qualified applicants who can and would make some use of this range.

Snake Creek Allotment S&G :- Wayne B. Gonder permittee preference 545 head.

As you are acquainted, Mr. Gaonder bought the Bellander permit and sheep with grazing rights in this allotment. These sheep were run incommon with 180 head of Geo T. Baker (under temporary permit). They had a good herder and he followed current grazing instructions carefully. I had them use part of the Baker Creek allotment and the 710 head in this herd certainly did nicely with very little loss. However, Granite Basin which has been subjected to several flash storm during the past three or four years should be given still added rest and I would suggest that, if possible, grazing be restricted in this unit for one or two years. If this is not practicable at least defer its use and then give it only light use, that all plants might get a better start in the loose granitic soil which prevails through out the unit.

Merchum Allotment S&G:- Baker, P.W. permitte with 205 head preference and
Fielding, John with preference of 100 head.

As discussed in last years report these sheep were mixed with 635 head of R. A. Yellands and run part time on the Merchum Allotment and portions of the Baker Creek Allotment, and on the Miller Basin section of the Yelland Allotment on Mt. Moriah Division (see discussion of this under Yelland Allotment)

There was a good dry herder with this band of 1114 (290 temp to Baker 205 regular, 100 Fielding and 635 Yelland--Baker didnot run his full number see 874-12) and it is felt that instructions were followed very carefully. More use was gotten of the low range on this allotment than for sometime and it is hoped that these permittees will again run dry sheep next year to take advantage of the dry low feed that is available on this allotment and the lower part of the Baker Allotment.

It is suggested that Mr. Fielding be given some range for his permit. He has had this small permit for some time but has never been allotted any particular piece of range to care for them. He has been running under the Kirkeby non-use in Snake Creek and the Baker Creek range when it was not used. I would recommend that this be taken into consideration in the reallocation of the Baker Creek Range and permit.

Pole Canyon Allotment C&H:- Fielding 8, Christopherson 20, Baker G.T 20head

This allotment was used by C&H for the better part of June and July after which most of the stock were removed to the Baker Allotment. The stock were not put on the forest until about the 25th of May and all

were held south of the Creek and below the Narrows in Baker Creek until about the 10th of June when the zone fence in Pole canyon was opened and the cattle placed within the lower unit. This held them for one week when they were placed above the middle zone fence. There was 25 head of steers and 34 head of cows and heifers with some young stuff in this canyon and they soon cleaned out the meadows but would not get out on the side hills very far though the grass was knee deep. Salt was put out and the stock driven out to it but they would not get out and rustle. Out side of the steers most of this stuff is of dairy stock and just didn't want to get out where it was rough. Mr. Baker asked for and was given permission to seperate his stuff and put them in Baker Creek proper. This left the steers only in Pole Canyon. They were watched for about two weeks and were starting to lose weight but would still refuse to get out and rustle on the side hills where there was lots of feed. Accordingly, they were moved into the main fork of Baker Creek for the balance of the season and did very nicely. All this stock were taken up the main fork as far as the Deishman Cabin and grazed out all the meadow in this fork which is the first time this feed has been taken for many years.

From my observations the past two seasons I would say that Pole Canyon will not carry more than thirty head for the main portion of the summer. Therefore it is necessary to allocate range in Baker Creek for the balance of the stock under permit. My intent is to call these permittees together in the near future and see which of them would like to take Pole Canyon and what disposition will be made in responsibility to salt, ride and care for this community herd. To this end it would be very nice if we had an Ass'n of the Cattle permittees on this District.

If we find that the class of stock run in Pole Canyon will not utilize the feed on the side hills it is my recommendation that we allow some sheep to graze this area in the fall before going off the mountain. After the cattle went out sheep from the Merchum allotment grazed Pole Can. this yea

Baker Creek Allotment S&G Last preference was for 710 head

Since the permit covering the use of this allotment was revocated this past season no use was taken under such permit. However, I had the Snake Creek herd take the South Fork and the Cattle from Pole canyon take all the bottoms and the Main Fork along with Timber Creek unit. The Robison Sheep from the Strawberry Allotment was allowed to take the portion North of the Creek with out watering at the creek except at one place above the camp ground above the forks.

My recommendation is that at least 350 head of this permit be retained for range protection and that a portion be set aside for the cattle that have been given permits in the past four years with out the allocation of range other than the Pole Canyon Allotment which was a part of the Baker Creek permit. Also range for the 100 head of John Fielding should be taken care of in this shift. I would suggest that all or part of Can Young Canyon unit be used for this purpose as well as the lower Baker Creek unit.

As discussed before I would like to see all or part of the Miller cattle brought over here where there is feed and where they can run with cattle and not be in competition with the sheep on the Miller Basin Units. However, I don't know how this would appeal to Miller.

Last spring at the suggestion of Mr. Larson I placed a small unit called the Big Pine unit, the section just above the Cave's and draining into Lehman Creek, in the Strawberry Allotment of the Robison Bros. This leaves the following units of the Baker Creek Allotment:

The Bench Unit
South Fork Unit
(The bottoms of the Main Fork good for C&H only)
Baker Creek Unit
South Baker Creek Unit
Lower Baker Creek Unit

Pole Canyon having already been taken from the Baker Allotment and set up as a C&H Allotment.

I certianly hope that this matter can be settled this next season so that we can get rid of so much temporary permits and settle down to management based on known numbers and range.

Strawberry Allotment S&G:- Robison Bros. and G.S.Robison Estate

There were 1143 head of E/L put on this allotment for the full season and then an additional week was granted in the fall.

The grazing instructions for the current season as approved by the Supervisor were followed out very closely. In fact more use was made of the low range than had been planned and this was taken from the grazing time alloted in the Lehman Basin Unit. Lehman Basin Unit was grazed lightly and you will recall your inspection of this area and the condition in which it was left. The amount of feed left this season was quite a little more than was left last year.

It is my intentions to work out a plan with Mr. Robison which will allow the retirement of half or all the Lehman Basin unit for the 1939 season. I believe this can be done voluntarily on the part of Mr. Robison with out the necessity of taking the 5 % cut which we have held out in case it was necessary to make a reduction to get proper use and management. Mr. Robison has been more than willing to do as we have asked although he is insistant that he does not want to do anything that will mean a cut in numbers or reduction in the average weight of his lambs.

You will recall that a portion of the Strawberry Creek proper seemed to have little use. Mr. Robison avoids this area as considerable loss has resulted from poison in this section. As stated in my memo after inspecting

this area I can not tell what this might be and it is my understanding that Clawson of the Bureau of Animal Industry has been out and made an attempt to isolate the plants or plant causing the trouble but he was unable to do so.

Aside from the area discussed, in Lehman Creek, I feel that the Strawberry allotment is in pretty fair shape and Doyle has agreed to lighten up on all the high country if we can work out a plan that will provide him sufficient feed. This I feel we can work out if climatic conditions are at all favorable.

Weaver Creek Allotment S&G:- Robsion Bros. part of the 2550 preference.

Mr. Robison put 1139 head of E/L on this allotment for the full season and was granted an additional weeks use at the close of the regular season.

The Robisons have considerable range outside the forest boundary which is just as high and just as good summer range and it is their habit to use this range while grazing that portion of the forest range next to their private and KK Taylor Grazing lands. They water on the forest but spend the better part of one month on and off the forest in the north portion of the Snake Division. This herd has been doing this for some time yet all the grazing time is charged against the Weaver Creek Allotment. On your next trip over this section you will note that some of the range outside is even higher and better range than that in the forest.

This herd has considerable low range in Weaver Creek and made good use of this range this season. This is the first year for four years that the Robisons have come onto the forest at the opening of the grazing season with this herd. It has been their policy to get some of their outside range first and then move on to the Weaver Creek unit about the 1st of July. Usually by this time the feed is pretty well dried up on this low bench and they have been getting little use of the area. However, they took most of it this year before it started to burn. It is my intentions to have them follow the same procedure next year if the seasons are at all similar.

I have not found any critical areas on this allotment and feel that with continued care this range should improve under the present plan of management if the seasons are at all favorable.

Shingle Creek Allotment S&G:- Robison Bros. part of the 2550 preference.

Robison Bros. placed 832 E/L on this allotment for the full season. They were granted an additional weeks use at the close of the regular season.

This allotment is well watered but is very rocky. The very nature of the soil doesnot support a very luxuriant growth of forage but there is considerable browse on the lower range and the sheep on this allotment do quite well considering the type of range they are run upon. The current Grazing instructions were followed to the best of my knowledge and and inspection of a portione of this range on the 23rd of October indicated that the utiliztion was not too great for the type cover. It is thought that the very character of this allotment will protect it in a large part from much abusive use. However, the Shingle Creek Basin must be watched that its use does not become too heavy as this is perhaps the most choice portion of the allotment but at the present does not indicate that it is being given too heavy use.

Mr. Robison is very interested in the welfare of his sheep and I have every reason to believe is willing to co-operate in any reasonable managment plan that will insure him the maximum amount of feed over the longest period of time. I feel that I have gained his confidence and that he is willing to co-operate in working out just such plans.

A summary of the amount of use taken by the Robison sheep follows:-

Actual use ---- Shingle Creek and Weaver Creek Allotments	6081	sheep Mo.
Actual use ---- Strawberry and Lexington Allotments	6772	sheep Mo.
total Actual Use	12,853	sheep Mo.

Permitted sheep Months Robison Bros	2550 preference	
G. S. Robison Estate.	1755 preference	
Total	4305 preference	
Total permitted sheep Months use equals ---	12,915	sheep Mo.

Every effort will be made to continue close inspection of these allotments and the plans will be revised annually as need is indicated from such inspections.

Shingle Creek Allotment C&H:- D.R.Kerr permittee 22 head preference.

This case has been discussed some what under trespass and until the proposed Spring Valley Drift Fence is completed nothing but a good deal of riding will prevent much trespass by the Kerr, and Robison Stock on this range. Ed Lester

The bad part about the whole thing in this case is that the greatest amount of trespass takes place in the early spring when no stock should be on the allotment at all. These cattle drift up with the snow and new growth and considerable damage is done to what little feed there is on the portion of the Shingle Creek Allotment that these cattle graze.

I have suggested tagging permitted stock in order to give a better idea of the amount of trespass on this allotment but it was thought that this might not be so practical and might work even a greater hardship on the permittee than the present situation does.

Strawberry Allotment C&H:- G. S. Robison Estate 19 head preference.

The cattle run under this permit have for the past two years taken so little feed that the bottom hardly indicates that they have been around but in a few spots where they have bedded out considerable. Neither year has the permit been filled nor the permitted number of cow months taken. However, it is the intention of Mr. Robison to fill this permit this coming season.

Because of the area in lower Strawberry that the sheep do not take due to poison the cattle have plenty of feed. Mr. Robison is of the opinion that if many more head were put in they would drift up into upper Strawberry as they formerly did when around fifty head were run in this canyon. However, if the demand is sufficient I feel that ten to twenty head additional could be placed in this canyon with out any serious dificulty.

The Robison sheep get quite a little useof the bottoms when they come through the second time. However, this year I estimated that the use of these meadows did not average more than about 30 per cent.

G, Management, Annual Report, Nevada, December 10, 1938, S.D. Warner, Forest Ranger, Historical Files, USFS, Ely.

APPENDIX Z

LEHMAN CAVES NATIONAL MONUMENT, PROCLAMATION (NO. 1618), JANUARY 24, 1922

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

[No. 1618—Jan. 24, 1922—42 Stat. 2260]

WHEREAS, certain natural caves, known as the Lehman Caves, which are situated upon partly surveyed lands within the Nevada National Forest in the State of Nevada, are of unusual scientific interest and importance, and it appears that the public interests will be promoted by reserving these caves with as much land as may be necessary for the proper protection thereof, as a National Monument.

NOW, THEREFORE, I, Warren G. Harding, President of the United States of America, by virtue of the power in me vested by section two of the Act of Congress approved June eight, nineteen hundred and six, entitled, "An Act for the preservation of American antiquities", do proclaim that there are hereby reserved from all forms of appropriation under the public land laws, subject to all prior valid adverse claims, and set apart as a National Monument, all tracts of land in the State of Nevada shown as the Lehman Caves National Monument on the diagram forming a part hereof.

The reservation made by this proclamation is not intended to prevent the use of the lands for National Forest purposes under the proclamation establishing the Nevada National Forest, and the two reservations shall both be effective on the land withdrawn but the National Monument hereby established shall be the dominant reservation and any use of the land which interferes with its preservation or protection as a National Monument is hereby forbidden.

Warning is hereby given to all unauthorized persons not to appropriate, injure, deface, remove, or destroy any feature of this National Monument, or to locate or settle on any of the lands reserved by this proclamation.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this twenty-fourth day of January, in the year of our Lord one thousand nine hundred and twenty-two, [SEAL] and of the Independence of the United States of America the one hundred and forty-sixth.

WARREN G. HARDING.

By the President:
CHARLES E. HUGHES,
Secretary of State.

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

LEHMAN CAVE NATIONAL MONUMENT

within

NEVADA NATIONAL FOREST

Partly surveyed Township 13 North - Range 69 East

NEVADA

Mt. Diablo Base and Meridian

——— *National Monument Boundary*

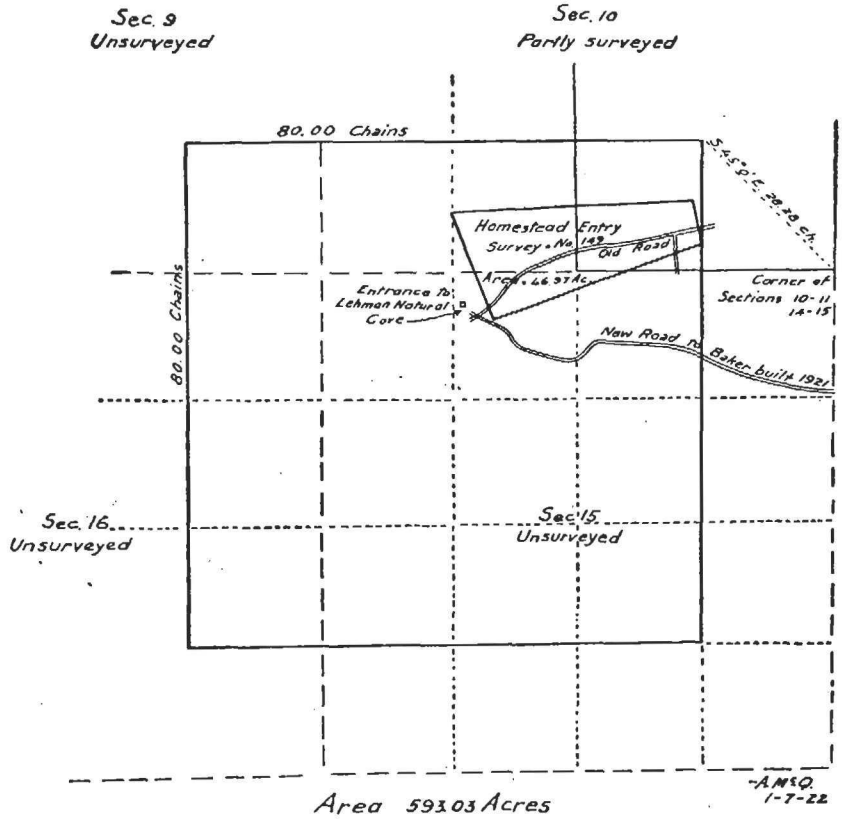


DIAGRAM FORMING A PART OF PROCLAMATION DATED JANUARY 24, 1922.

APPENDIX AA

AN ACT FOR THE PRESERVATION OF AMERICAN ANTIQUITIES, APPROVED JUNE 8, 1906 (34 STAT. 225)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That any person who shall appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the department of the Government having jurisdiction over the lands on which said antiquities are situated, shall, upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court. (U.S.C., title 16, sec. 433.)

SEC. 2. That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected: *Provided*, That when such objects are situated upon a tract covered by a bona fide unperfected claim or held in private ownership, the tracts, or so much thereof as may be necessary for the proper care and management of the object, may be relinquished to the Government, and the Secretary of the Interior is hereby authorized to accept the relinquishment of such tracts in behalf of the Government of the United States. (U.S.C., title 16, sec. 431.)

SEC. 3. That permits for the examination of ruins, the excavation of archæological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions may be granted by the Secretaries of the Interior, Agriculture, and War to institutions which they may deem properly qualified to conduct such examination, excavation, or gathering, subject to such rules and regulations as they may prescribe: *Provided*, That the examinations, excavations, and gatherings are undertaken for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects, and that the gatherings shall be made for permanent preservation in public museums. (U.S.C., title 16, sec. 432.)

SEC. 4. That the Secretaries of the departments aforesaid shall make and publish from time to time uniform rules and regulations for the purpose of carrying out the provisions of this act. (U.S.C., title 16, sec. 432.)

UNIFORM RULES AND REGULATIONS

Prescribed by the Secretaries of the Interior, Agriculture, and War to Carry Out the Provisions of the "Act for the Preservation of American Antiquities," approved June 8, 1906 (34 Stat. 225)[1]

1. Jurisdiction over ruins, archeological sites, historic and prehistoric monuments and structures, objects of antiquity, historic landmarks, and other objects of historic or scientific interest, shall be exercised under the act by the respective Departments as follows:

By the Secretary of Agriculture over lands within the exterior limits of forest reserves, by the Secretary of War over lands within the exterior limits of military reservations, by the Secretary of the Interior over all other lands owned or controlled by the Government of the United States, provided the Secretaries of War and Agriculture may by agreement cooperate with the Secretary of the Interior in the supervision of such monuments and objects covered by the act of June 8, 1906, as may be located on lands near or adjacent to forest reserves and military reservations, respectively.

2. No permit for the removal of any ancient monument or structure which can be permanently preserved under the control of the United States *in situ*, and remain an object of interest, shall be granted.

3. Permits for the examination of ruins, the excavation of archeological sites, and the gathering of objects of antiquity will be granted, by the respective Secretaries having jurisdiction, to reputable museums, universities, colleges, or other recognized scientific or educational institutions, or to their duly authorized agents.

4. No exclusive permits shall be granted for a larger area than the applicant can reasonably be expected to explore fully and systematically within the time limit named in the permit.

5. Each application for a permit should be filed with the Secretary having jurisdiction, and must be accompanied by a definite outline of the proposed work, indicating the name of the institution making the request, the date proposed for beginning the field work, the length of time proposed to be devoted to it, and the person who will have immediate charge of the work. The application must also contain an exact statement of the character of the work, whether examination, excavation, or gathering, and the public museum in which the collections made under the permit are to be permanently preserved. The application must be accompanied by a sketch plan or description of the particular site or area to be examined, excavated, or searched, so definite that it can be located on the map with reasonable accuracy.

6. No permit will be granted for a period of more than three years, but if the work has been diligently prosecuted under the permit, the time may be extended for proper cause upon application.

7. Failure to begin work under a permit within six months after it is granted, or failure to diligently prosecute such work after it has been begun, shall make the permit void without any order or proceeding by the Secretary having jurisdiction.

8. Applications for permits shall be referred to the Smithsonian Institution for recommendation.

9. Every permit shall be in writing and copies shall be transmitted to the Smithsonian Institution and the field officer in charge of the land involved. The permittee will be furnished with a copy of these rules and regulations.

10. At the close of each season's field work the permittee shall report in duplicate to the Smithsonian Institution, in such form as its secretary may prescribe, and shall prepare in duplicate a catalogue of the collections and of the photographs made during the season, indicating therein such material, if any, as may be available for exchange.

11. Institutions and persons receiving permits for excavation shall, after the completion of the work, restore the lands upon which they have worked to their customary condition, to the satisfaction of the field officer in charge.

12. All permits shall be terminable at the discretion of the Secretary having jurisdiction.

13. The field officer in charge of land owned or controlled by the Government of the United States shall, from time to time, inquire and report as to the existence, on or near such lands, of ruins and archeological sites, historic or prehistoric ruins or monuments, objects of antiquity, historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest.

14. The field officer in charge may at all times examine the permit of any person or institution claiming privileges granted in accordance with the act and these rules and regulations, and may fully examine all work done under such permit.

15. All persons duly authorized by the Secretaries of Agriculture, War, and Interior may apprehend or cause to be arrested, as provided in the act of February 6, 1905 (33 Stat. 700)[2] any person or persons who appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity on lands under the supervision of the Secretaries of Agriculture, War, and Interior, respectively.

16. Any object of antiquity taken, or collection made, on lands owned or controlled by the United States, without a permit, as prescribed by the act and these rules and regulations, or there taken or made, contrary to the terms of the permit, or contrary to the act and these rules and regulations, may be seized wherever found and at any time, by the proper field officer or by any person duly authorized by the Secretary having jurisdiction, and disposed of as the Secretary shall determine, by deposit in the proper national depository or otherwise.

17. Every collection made under the authority of the act and of these rules and regulations shall be preserved in the public museum designated in the permit and shall be accessible to the public. No such collection shall be removed from such public museum without the written authority of the Secretary of the Smithsonian Institution, and then only to another public museum, where it shall be accessible to the public; and when any public museum, which is a depository of any collection made under the provisions of the act and these rules and regulations, shall cease to exist, every such collection in such public museum shall thereupon revert to the national collections and be placed in the proper national depository.

WASHINGTON, D.C., *December 28, 1906.*

The foregoing rules and regulations are hereby approved in triplicate and, under authority conferred by law on the Secretaries of the Interior, Agriculture, and War, are hereby made and established, to take effect immediately.

E. A. HITCHCOCK,
Secretary of the Interior.
JAMES WILSON,
Secretary of Agriculture.
WM. H. TAFT,
Secretary of War.

File No. 12-1, J-V, Central Files, 1907-36, Record Group 48, Records of the Secretary of the Interior, National Archives and Records Administration, Washington, D.C.

APPENDIX BB

MANAGEMENT OBJECTIVES – LEHMAN CAVES NATIONAL MONUMENT, 1977

Natural Resources on the Surface

To conserve scenic resources as well as the pinyon-juniper, sagebrush, and other native ecological communities of the park's Great Basin environment free, to the greatest degree possible, from the adverse effects of human disturbance.

To eliminate the adverse effects of trespass grazing on the park's vegetation and habitat values.

To ensure that hunting and the harvesting of pinyon nuts are confined to areas outside the park's boundaries.

Natural Resources in the Caves

To conserve the biota and protect the geological features of the Lehman Caves and to minimize the adverse effects of visitor use and cave exploration on these resources.

To manage the developed portion of the cave system for interpretation of cave features and cave life, and to manage the Gypsum annex for professional exploration and research.

Cultural Resources

To identify, evaluate, protect, and preserve the park's cultural resources in accordance with legislative and executive requirements and the Service's historic preservation policies.

To protect and preserve the archeological resources in the caves and on the surface.

To protect and preserve the Rhodes Cabin and the historic setting of Lehman's Cave Ranch.

Recreational Use

To make available opportunities for day-use recreational activities, such as picnicking, cave touring, and hiking, that are compatible with protection and perpetuation of the park's natural and cultural resources.

To encourage the greatest possible public use of the caves and still ensure a high quality visitor experience as well as the necessary protection of cave features from theft and trailside damage.

Interpretation

To foster public understanding and appreciation of (1) the geological evolution and ecology of the Lehman Caves, particularly the processes responsible for the formation of its great variety of highly decorated cave features, and (2) the ecology of the native plant and animal life of the Great Basin.

To provide secondary interpretive emphasis on the use of the caves by Native Americans, the early white settlement and development of the park area, and the history of cave exploration and research.

Visitor and Employee Safety

To promote awareness of hazards associated with use of the park and to ensure the safety of visitors and employees.

To eliminate possible threats to the safety of employees due to prolonged exposure to levels of radon in the caves.

Acquisition of Information

To secure adequate information to facilitate management of park resources and to ensure the safety of visitors and employees.

To evaluate the levels of radon in the caves as well as the effects of radon on public health and welfare.

To secure information on the effects of artificial lighting on cave features in order to facilitate improved resource protection and management.

To secure information on the resources (vegetation, soils, animals, minerals and groundwater) in order to facilitate improved interpretation and management.

Cooperation

To cooperate with other agencies, private organizations, and members of the public to (1) promote use and development of lands in the park and its vicinity in a manner that minimizes adverse effects on esthetics and the quality of park resources, and (2) ensure that development of visitor services and recreational facilities is conducted in a regional context.

To cooperate with the Forest Service in coordinating the management of the park and the surrounding Humboldt National Forest in such areas as maintenance, visitor information, recreational development, employee housing, and wastewater treatment.

To cooperate with the Nevada State Department of Fish and Game to ensure long-term perpetuation of native wildlife populations in the park and its vicinity.

To cooperate with the White Pine County Chamber of Commerce in encouraging public visitation to the park.

Development

To ensure that development is the minimum necessary to facilitate administration and public use of the park.

To ensure that adequate housing is available for park employees.

To ensure a high quality, dependable water supply to the park through adequate facilities for water supply and water storage.

To ensure a high quality and sufficient wastewater treatment facility is maintained for visitors and residents.

"Statement for Management," Lehman Caves National Monument, January 10, 1977, pp. 17-20, Files, Technical Information Center, Denver Service Center.

APPENDIX CC

PRIMARY THEMES FOR THE GREAT BASIN

A. NATURAL

1. Present Landforms
   a. Plains, Plateaus, Mesas
   b. Mountain Systems
   c. Works of Volcanism
   d. Hot Water Phenomena
   e. River Systems and Lakes
   f. Work of Glaciers
   g. Lakeshores and Islands
   h. Earthquake Phenomena
   i. Caves and Springs

2. Geologic History
   a. Cambrian to Lower Silurian
   b. Silurian and Devonian
   c. Mississippian through Permian
   d. Oligocene through Recent

3. Terrestrial Ecosystem
   a. Desert Communities
   b. Dry Coniferous Forest and Woodland
   c. Boreal Forest
   d. Tundra

4. Aquatic Ecosystems
   a. Streams
   b. Lakes and Ponds

B. CULTURAL

1. Original Inhabitants
   a. Earliest Americans

2. Westward Expansion
   a. Great Explorers of the West
   b. Western Trails and Travelers
   c. Mining Frontier
   d. Cattlemen's Empire

STUDY AREA EVALUATION VALUES

1. Great Basin Primary Themes (natural, cultural)
2. Recreation and Visitor Service
3. Manageable Geographic Unit (complete Basin and Range)
4. Location (proximity to major population centers)
5. Visual Quality
6. Science/Research
7. Supplementary Significant Features
8. Mining and Energy
9. Agriculture

APPENDIX DD

PUBLIC LAW 99-565, OCTOBER 27, 1986 (100 STAT. 3181) – ACT ESTABLISHING GREAT BASIN NATIONAL PARK

An Act

To establish a Great Basin National Park in the State of Nevada, and for other purposes.

Oct. 27, 1986
[S. 2506]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Great Basin National Park Act of 1986.

SHORT TITLE

SECTION 1. This Act may be known as the "Great Basin National Park Act of 1986".

16 USC 410mm note.

ESTABLISHMENT

SEC. 2. (a) In order to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values, there is hereby established the Great Basin National Park (hereinafter in this Act referred to as the "park").

16 USC 410mm.

(b) The park shall consist of approximately seventy-six thousand acres, as depicted on the map entitled "Boundary Map, Great Basin National Park, Nevada," numbered NA–GB 20,017, and dated October 1986. The map shall be on file and available for public inspection in the offices of the National Park Service, Department of the Interior, and the Office of the Superintendent, Great Basin National Park, Nevada.

Public information.

(c) Within 6 months after the enactment of this Act, the Secretary of the Interior (hereinafter in this Act referred to as the "Secretary") shall file a legal description of the park designated under this section with the Committee on Interior and Insular Affairs of the United States House of Representatives and with the Committee on Energy and Natural Resources of the United States Senate. Such legal description shall have the same force and effect as if included in this Act, except that the Secretary may correct clerical and typographical errors in such legal description and in the map referred to in subsection (a). The legal description shall be on file and available for public inspection in the offices of the National Park Service, Department of the Interior.

Public information.

(d)(1) The Lehman Caves National Monument, designated on January 24, 1922, by Presidential proclamation under the authority contained in the Act of June 8, 1906 (34 Stat. 225) is hereby abolished and the lands incorporated within the Great Basin National Park. Any reference in any law, map, regulation, document, record, or other paper of the United States to such national monument shall be deemed to be a reference to Great Basin National Park.

(2) Any funds available for purposes of the national monument shall be available for purposes of the park.

Conservation. Fish and fishing. Wildlife. 16 USC 410mm-1.

SEC. 3. (a) The Secretary shall administer the park in accordance with this Act and with the provisions of law generally applicable to units of the national park system, including the Act entitled "An Act to establish a National Park Service, and for other purposes," approved August 26, 1916 (39 Stat. 535; 16 U.S.C. 1–4). The Secretary shall protect, manage, and administer the park in such manner as to conserve and protect the scenery, the natural, geologic, historic, and archaeological resources of the park, including fish and wildlife and to provide for the public use and enjoyment of the same in such a manner as to perpetuate these qualities for future generations.

(b) The Secretary shall permit fishing on lands and waters under his jurisdiction within the park in accordance with the applicable laws of the United States and the State of Nevada, except that he may designate zones where, and periods when, no fishing may be permitted for reasons of public safety. Except in emergencies, any regulations prescribing such restrictions relating to fishing, shall be put into effect only after consultation with the appropriate State agency having jurisdiction over fishing activities.

(c) After notice and opportunity for public hearing, the Secretary shall prepare a management plan for the park. The Secretary shall submit such plan to the Committee on Interior and Insular Affairs of the United States House of Representatives and with the Committee on Energy and Natural Resources of the United States Senate within three years after the enactment of this Act. Such plan may be amended from time to time. The plan shall include, but not be limited to, provisions related to grazing within the park to the extent permitted under subsection (e) and provisions providing for the appropriate management of fish and wildlife and fishing within the park in accordance with subsection (b). Such provisions shall be adopted only after consultation with the appropriate State agency having jurisdiction over fish and wildlife.

(d) Subject to valid existing rights, Federal lands and interests therein, within the park, are withdrawn from disposition under the public lands laws and from entry or appropriation under the mining laws of the United States, from the operation of the mineral leasing laws of the United States, and from operation of the Geothermal Steam Act of 1970, as amended.

30 USC 1001 note.

(e) Subject to such limitations, conditions, or regulations as he may prescribe, the Secretary shall permit grazing on lands within the park to the same extent as was permitted on such lands as of July 1, 1985. Grazing within the park shall be administered by the National Park Service.

(f) At the request of the permittee, or at the initiative of the Secretary, negotiations may take place at any time with holders of valid existing grazing permits on land within the park, for an exchange of all or part of their grazing allotments for allotments outside the park. No such exchange shall take place if, in the opinion of the affected Federal land management agency, the exchange would result in overgrazing of Federal lands.

(g) Existing water-related range improvements inside the park may be maintained by the Secretary or the persons benefitting from them, subject to reasonable regulation by the Secretary.

(h) Nothing in this Act shall be construed to establish a new express or implied reservation to the United States of any water or water-related right with respect to the land described in section 2 of

this Act: *Provided*, That the United States shall be entitled to only that express or implied reserved water right which may have been associated with the initial establishment and withdrawal of Humboldt National Forest and the Lehman Caves National Monument from the public domain with respect to the land described in section 2 of this Act. No provision of this Act shall be construed as authorizing the appropriation of water, except in accordance with the substantive and procedural law of the State of Nevada.

State and local governments.

(i) In order to encourage unified and cost-effective interpretation of the Great Basin physiographic region, the Secretary is authorized and encouraged to enter into cooperative agreements with other Federal, State, and local public departments and agencies providing for the interpretation of the Great Basin physiographic region. Such agreements shall include, but not be limited to, authority for the Secretary to develop and operate interpretive facilities and programs on lands and waters outside of the boundaries of such park, with the concurrence of the owner or administrator thereof.

ACQUISITION OF LAND

16 USC 410mm-2.

SEC. 4. (a) The Secretary may acquire land or interests in land within the boundaries of the park by donation, purchase with donated or appropriated funds, or exchange, but no such lands or interests therein may be acquired without the consent of the owner thereof. Lands owned by the State of Nevada or any political subdivision thereof may be acquired only by donation or exchange.

(b) Lands and waters, and interests therein, within the boundaries of the park which were administered by the Forest Service, United States Department of Agriculture prior to the date of enactment of this Act are hereby transferred to the administrative jurisdiction of the Secretary to be administered in accordance with this Act. The boundaries of the Humboldt National Forest shall be adjusted accordingly.

AUTHORIZATION OF APPROPRIATIONS

16 USC 410mm-3.

SEC. 5. (a) Not more than $800,000 are authorized to be appropriated for development of the park.

(b) Not more than $200,000 are authorized to be appropriated for acquisition of lands and interests in land within the park.

Approved October 27, 1986.

APPENDIX EE

NATIONAL REGISTER NOMINATION FORM – OSCEOLA (EAST) DITCH

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Osceola (East) Ditch

other names/site number

2. Location

street & number Great Basin National Park NA not for publication

city, town Baker [X] vicinity

state Nevada code NV county White Pine code 033 zip code 89311

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
		Contributing	Noncontributing
[ ] private	[ ] building(s)		buildings
[ ] public-local	[ ] district		sites
[ ] public-State	[ ] site		sites
[X] public-Federal	[X] structure	2	structures
	[ ] object		objects
		2	Total

Name of related multiple property listing: N/A

Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this [ ] nomination [ ] request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property [ ] meets [ ] does not meet the National Register criteria. [ ] See continuation sheet.

Signature of certifying official — Date

State or Federal agency and bureau

In my opinion, the property [ ] meets [ ] does not meet the National Register criteria. [ ] See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

[ ] entered in the National Register.
[ ] See continuation sheet.

[ ] determined eligible for the National Register. [ ] See continuation sheet.

[ ] determined not eligible for the National Register.

[ ] removed from the National Register.

[ ] other, (explain:) _____

Signature of the Keeper — Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)

Indurstry/Processing/Extraction-Waterworks

Current Functions (enter categories from instructions)

Vacant/Not in Use

7. Description

Architectural Classification (enter categories from instructions)

Other: Water Ditch
Other: Rock Dam

Materials (enter categories from instructions)

foundation N/A
walls N/A
roof N/A
other Earth Ditch; Wooden Flume; Rock Dam

Describe present and historic physical appearance.

Constructed in 1889-90 by the Osceola Gravel Mining Company, the Osceola (East) Ditch extended some 18 miles from Lehman Creek on a north-northwesterly course, carrying water for hydraulic mining operations at Osceola. The ditch included wooden flumes and a 600-foot tunnel and incorporated water from Lehman, Mill, Strawberry, Sage, and Weaver creeks. Approximately ten miles of the ditch are in Great Basin National Park. Many parts of the extant ditch in the park are eroded, overgrown with brush and trees, and partially filled with rock rubble, while the wooden flume remains are in a state of severe deterioration. The eastern portal of the tunnel near the north boundary of the park in Strawberry Canyon has collapsed.

As part of the Osceola (East) Ditch construction in 1889-90, a rock dam and headgate were built at Stella Lake in Upper Lehman Canyon to increase the lake's storage capacity and thus the flow of Lehman Creek. There are extant portions of the rock dam, but there are no visible headgate remains. The ditch structures and related improvements at the placer operations in Osceola fell into disuse, disrepair, and decay during the early 1900s and were destroyed entirely by a fire in the 1940s.

[X] See continuation sheet

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:
☐ nationally ☐ statewide ☒ locally

Applicable National Register Criteria ☐ A ☐ B ☒ C ☐ D

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)
Engineering

Period of Significance
1890-1901

Significant Dates
1890-1901

Cultural Affiliation
N/A

Significant Person
N/A

Architect/Builder
Unknown

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The Osceola (East) Ditch is significant on the local level as the most extensive engineering system of its kind in eastern Nevada, providing an elaborate conveyance of water required for the development of the hydraulic mining operations at Osceola. Osceola was the most important and productive mining district in eastern Nevada and the only predominately gold placer district in White Pine County. During its construction and immediately after its completion in 1889-90, the ditch received attention and publicity in nationally-circulating mining periodicals such as the Engineering and Mining Journal and the Mining and Scientific Press. The ditch was only utilized for its intended purpose for some eleven years (1890-1901) and never did provide the necessary quantity of water required to permit the Osceola Gravel Mining Company's hydraulic operations to reach their widely-anticipated development and production potential. The engineering work, however, is an outstanding example of a mining-related water conveyance system designed to facilitate exploitation of rich placer gold deposits in late nineteenth century eastern Nevada. Despite the present state of deterioration and decay of the ditch and related works, it is the only extant example of such an engineering system in eastern Nevada with the exception of scattered traces of its companion Osceola (West) Ditch.

☒ See continuation sheet

9. Major Bibliographical References

1. White Pine News, October 24, 31, 1885; August 17, September 14, 21, October 12, November 23, 1889; February 8, April 5, 1890; May 5, 1904; and August 15, 1896.

2. Ely Mining Record, June 8, 1907.

3. "Osceola District, E. & M.J., 1901," File No. 335, Osceola Mining District, Nevada Mining District Collection, Nevada Bureau of Mines and Geology, University of Nevada, Reno.

4. Effie O. Read, White Pine Lang Syne: A True History of White Pine County, Nevada. Denver, Big Mountain Press, 1965.

[X] See continuation sheet

Previous documentation on file (NPS):

- [ ] preliminary determination of individual listing (36 CFR 67) has been requested
- [ ] previously listed in the National Register
- [ ] previously determined eligible by the National Register
- [ ] designated a National Historic Landmark
- [ ] recorded by Historic American Buildings Survey # _____
- [ ] recorded by Historic American Engineering Record # _____

Primary location of additional data:

- [ ] State historic preservation office
- [ ] Other State agency
- [X] Federal agency
- [ ] Local government
- [ ] University
- [ ] Other

Specify repository: Great Basin National Park

10. Geographical Data

Acreage of property Approx. 1 - 2 acres aggregate square measure

UTM References

	Zone	Easting	Northing
A			
B			
C			
D			

[X] See continuation sheet

Verbal Boundary Description

Boundary lines follow the line highlighted in yellow on the enclosed USGS quad maps. Generally, the boundary lines extend about 10 feet on either side of the center line of the ditch.

[ ] See continuation sheet

Boundary Justification

The boundary includes the Osceola (East) Ditch, its berm banks and associated components within Great Basin National Park. The Stella Lake Rock Dam is an associated component of the ditch system.

[ ] See continuation sheet

11. Form Prepared By

name/title Harlan D. Unrau, Historian
organization National Park Service - DSC - TWE date April 3, 1989
street & number 12795 W. Alameda Parkway telephone (303) 969-2254
city or town Lakewood state Colorado zip code 80225

The Osceola (East) Ditch was completed, and water from Lehman Creek passed through to the reservoir near Osceola's Dry Gulch on July 4, 1890. The total length of the ditch, including flumes and tunnel, was 95,133 feet, or 18 miles and 93 feet. Total cost of the ditch's construction was $108,222.65. The ditch had a carrying capacity of 2,500 miners' inches of water. Together with the 1,000-1,100 miners' inches provided by the 16-mile Osceola (West) Ditch that had been constructed on the west side of the Snake Range in 1884-85, the Osceola (East) Ditch was designed to meet the water requirements of the Osceola Gravel Mining Company for hydraulic operations on its 712 acres of placer ground at Osceola, nearly 500 of which were patented, in the Dry Gulch area just west of the town site.

Since 1877 the Osceola Gravel Mining Company, a Salt Lake City-based firm owned principally by Benjamin Hampton, had been interested in the Osceola placers, endeavoring to extract gold from its claims using hydraulic methods similar to those employed in the California gold fields. In August 1889 the Osceola Gravel Mining Company was reorganized and its controlling stock sold to the Osceola Placer Mining Company, a firm that recently had been incorporated in New Jersey. The directors of the new firm were W. B. Kunhard and I. A. Harrison of New York and Benjamin Hampton of Salt Lake City. James H. Marriott was named general superintendent and had charge of day-to-day operations of the Osceola Gravel Mining Company which retained its organizational identity.

The ditch portion of the Osceola (East) Ditch was 82,891 feet in length. Its dimensions were four feet wide in the bottom, two and a half feet deep in solid ground with sloping sides of a half to one or an angle of 22 1/2 degrees. The uniform grade of the ditch was 14 feet per mile, and it had a carrying capacity of 40,000,000 gallons per 24 hours, The excavated material, consisting of gravel, boulders, loose rock, and solid rock, was placed on the lower side of the ditch. Altogether, 81,198 cubic yards of material were excavated by blasting or gadding at a cost of some $58,307.86.

There were 14 main sections of wooden flumes. The flumes were located in places where it was impracticable to excavate a ditch such as the sides of "rocky and precipitous mountains". This was especially true in Lehman Canyon where 3,768 feet of flume had to be built. The longest single flume section was 2,808 feet and the shortest 96 feet. The aggregate length of flume was 5,352 feet.

The dimensions of the wooden flumes were four feet wide and four feet deep with uniform grade of 32 feet per mile. Considerable lengths of the flumes had to be supported on trestlework.

There were six drop flumes or chutes along the length of the Osceola (East) Ditch. The dimensions of these flumes varied according to the vertical fall at their respective locations. The total length of the flumes was 6,258 feet with an aggregate vertical fall of 1,352 feet.

The total length of the main flumes and drop chutes was 11,610 feet, the total cost of which was $21,494.05. This sum included the cost of four ditch tenders' houses, each 14 X 20 feet and furnished with bunks and tables, 16 waste gates, and timbers for trestles, stringers, and ties. The total amount of lumber used in the flumes was 316,800 feet (board measure). In addition, 28,240 linear feet of hewn timbers were used for stringers, trestle posts, and ties, the sizes varying from eight to 12 inches in diameter. The timber used was yellow pine, most of the lumber being cut at a sawmill near Mount Moriah, although smaller amounts were cut in sawmills in Baker Creek Canyon and the South Fork of the Big Wash.

The route of the Osceola (East) Ditch was shortened at least two miles by the excavation of a tunnel "through a projecting spur of the main mountain range" in Strawberry Canyon (just inside the north boundary of Great Basin National Park). The tunnel was 632.5 feet long, 5 feet wide, 6.5 feet high, and had a grade of 4 feet. The tunnel was bored through "fairly solid granite" except at its approaches where the rock was somewhat decomposed, requiring a few sets of timbers and lagging". W. I. Aiken of Osceola excavated and timbered the tunnel under contract at a cost of $5,060.

The total cost of the Osceola (East) Ditch was $108,222.65. This sum was broken down as follows: Purchase of Lehman Creek water rights, with ranch and improvements--$10,000; engineering expenses--$6,221.99; ditch excavation--$58,307.86; flume construction--$21,494.05; tunnel--$5,060; and general expenses for teamsters, cooks, construction superintendent, etc. In addition and "properly chargeable to the east-ditch account "was the work of cutting and draining a small lake [Stella Lake] at the head of Lehman's Canyon, putting in culvert and gate, constructing cabin, etc." at a cost of $949.28.

Associated with the construction of the Osceola (East) Ditch were improvements at the placer mines in Osceola which were outside the present boundaries of Great Basin National Park. The

distributing reservoir was enlarged some 50 percent in March 1890 by the excavation of nearly 4,000 cubic yards of "cemented gravel" and rock from the interior and placing it upon the bank. The enlargement, together with a new gate tower and waste gate, cost $2,875. Two large-sized giants or monitors (Hoskin-Marysville-California patent, Size No. 5) having 15-inch inlets and 8-inch nozzle butts, were added to the plant. The giants, with two 18-inch water gates and deflectors, cost $900.

Some 1,100 feet of large bedrock sluice was also constructed at Osceola having dimensions of 60 inches in width and 35 inches in depth. Since all of the gravel in the existing workings passed through the sluice it was "strongly built and supported" and "absolutely tight in the bottom to prevent loss of quicksilver and gold". The bottoms of the sluice were selected lumber one and three-quarters inches thick, planed, tongued, and grooved. The sides of the sluice were doubled, the inner lining consisting of two-inch plank. Riffle blocks were square timbers 12 inches X 12 inches X 12 inches placed in rows across the bottom and divided by a two-inch strip, which left an aperture in which the gold could settle. Total cost of the sluice, which required approximately 80 feet of lumber per lineal foot, was $3,300.

In connection with construction of the sluice a tunnel was driven some 135 feet through the north end of the bedrock into the deep channel at a cost of $1,225. The tunnel was 8 feet wide and seven feet high and bored through solid quartzite.

One set of under-currents was constructed at a point 1,000 feet below the head of the sluice. The set was 24 feet X 48 feet, divided into four compartments with a grade of 1 in 12 feet, and cost $385.

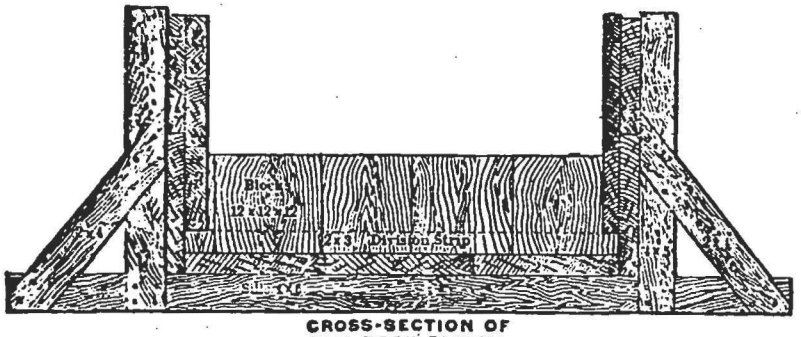
Miscellaneous improvements were added to the hydraulic operations in Osceola. A small pipe line was constructed to furnish the water to a Pelton wheel for power generation. New buildings and an electric lighting plant were constructed. Two arc lights of 2,000 candle-power were erected at the placer, thus enabling increased hydraulic operations to be conducted at night.

Assessment of Integrity

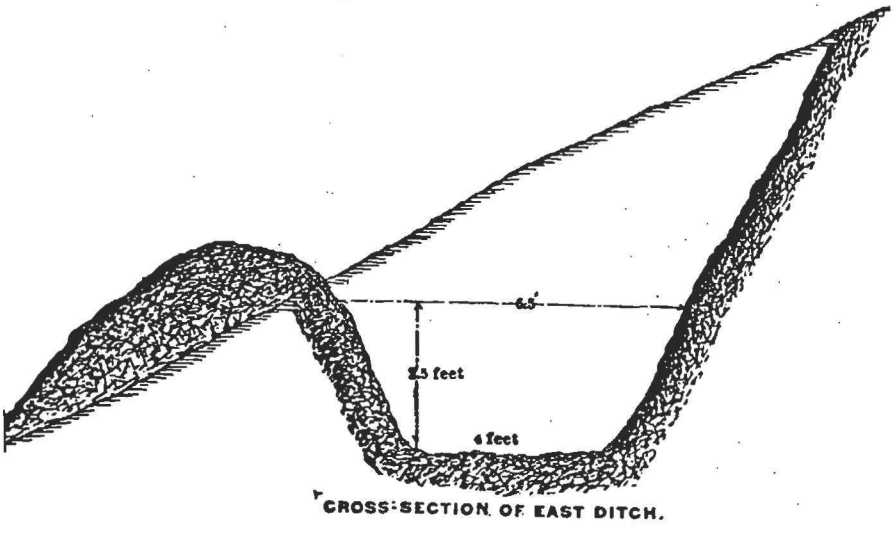
Despite the decay, disrepair, and deterioration of the Osceola (East) Ditch remnants within the boundaries of Great Basin National Park, the components of the water conveyance engineering system have never been altered, reconstructed, of restored. Thus, the

integrity of the system has been affected primarily by neglect, disuse, and weather. While there are reports that some of the wooden flume components have been vandalized and used for local construction, the historic integrity of the ditch has been left largely unimpaired.

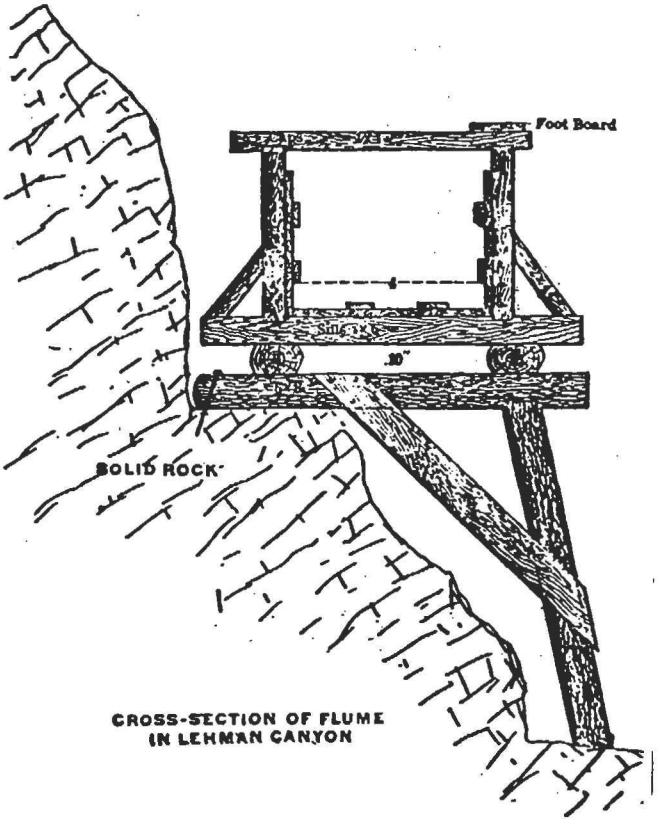
EAST DITCH CONSTRUCTION DRAWINGS



CROSS-SECTION OF
BED-ROCK SLUICE

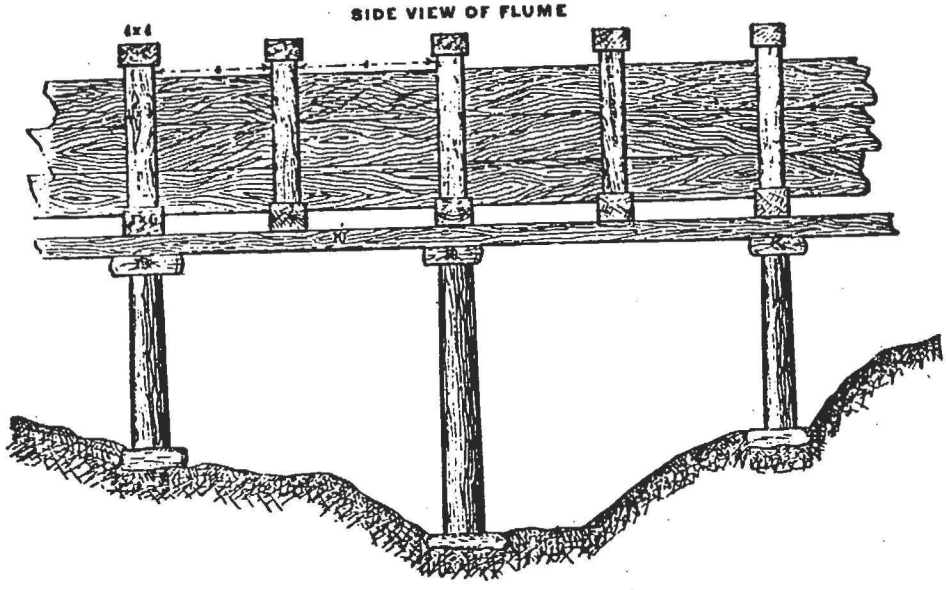


CROSS-SECTION OF EAST DITCH.

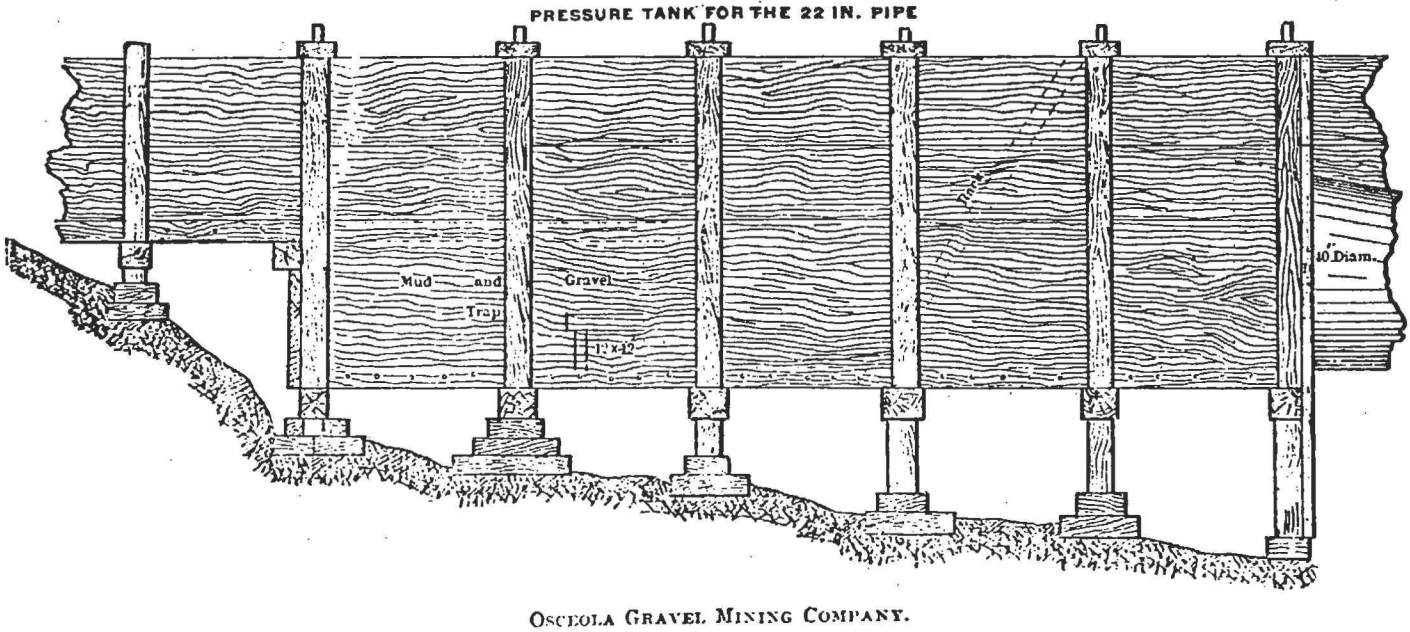


CROSS-SECTION OF FLUME
IN LEHMAN CANYON

SIDE VIEW OF FLUME



PRESSURE TANK FOR THE 22 IN. PIPE



OSCEOLA GRAVEL MINING COMPANY.

Historical Context

The significance of the Osceola (East) Ditch to the placer operations at Osceola was noted almost immediately. The first full year of placer operations at Osceola using the waters of both the East and West ditches was 1891. That year hydraulic activity was begun on May 8, using a 2,000-inch volume of water about seven hours daily. After May 20 operations commenced "full blast almost throughout the 24 hours," using a 2,000-inch volume. Later on July 11, 1891, the Engineering and Mining Journal reported:

> ...Gravel is being boomed off at a much greater rate than ever before, and prospects are highly encouraging both for water and gold. The ditches hold well; no accident to either has occurred, and cost of maintaining the east ditch is very much less than anticipated. Bed rock cleaning was stopped when the full supply of water began as it takes the present small force of men to attend to both monitors, which are working most satisfactorily. Whenever the bedrock is exposed, however, nuggets are picked up. On June 17 the mine was running 24 hours with 2,500 inches (40,000,000 gallons) water, and the amount was increasing.

Despite the initial glowing reports of the Osceola placer operations, however, gold production did not meet the expectations of the East Ditch promoters. The gross yield of the Osceola Gravel Mining Company for the years 1890 and 1891 was only $16,190.67 and $20,223, respectively.

Beginning in 1892 the Osceola gold placer operations were hampered by periodic water shortages, largely the result of a mild dry winter and leaking ditch wooden flumes. In September, for instance, the Engineering and Mining Journal reported that the gold placers were "yielding well at present," but because "of the lack of water, operations are being carried on under difficulties." But "for this drawback the placers, it is claimed, would make a rich return." For a time in early 1894 the Osceola Gravel Mining Company closed down its operations. In July 1895 it was reported that Osceola placer mines had resumed operations, the "two canals which supply the hydraulics are in use and 100 men are employed." In August 1896, however, the White Pine News, a county newspaper, observed that water "for mining purposes is said to be getting so scarce in Osceola that placers will have to shut down." One month later the Engineering and Mining Journal noted that the placers had "recently cleared up $12,030 from 24 days' work." There was "much rich gravel, but no water in that vicinity."

Intermittent placer operations continued at Osceola through the 1901 season. The previous seven years had been mild dry winters, and the water supply in the ditches, depending primarily on melting snow and springs, became inadequate to meet the needs of the placers. Water theft, leaky wooden flumes, and legal battles over water rights contributed to the curtailment of placer operations. By the turn of the century it was reported that the East and West ditches combined could only provide about 100 miners' inches of water. Because of the continuing water problems the Osceola placers produced only some $10,000 worh of gold in 1901.

In 1906, after the Osceola placer operations had been shut down for five years, H. S. Woolley, a mining promoter from New York City, secured the holdings of the nearly defunct Osceola Placer Mining Company, the parent firm of the Osceola Gravel Mining Company, and secured an option for water rights on Baker Creek. Upon returning to New York City, he succeeded in organizing the Nevada Amalgamated Mines and Power Company with assets of $1,000,000. The new company planned to reconstruct the West and East ditches, construct a large power plant on Baker Creek to furnish electricity for operation of the hoists and reduction works, establish three towns, build a railroad spur from Ely to Osceola, and amass a large labor force to accomplish the work. After several years, however, the venture proved to be unsuccessful and the project never materialized.

There is no documentary evidence that the Osceola (East) Ditch was used for placer mining activities after 1901. The ditch and its components fell into disuse and decay. During the 1940s a disastrous fire swept through Osceola, destroying the remnants of the ditch engineering system in that locale.

5. Biennial Report of the State Engineer, 1909-1910, P.37 in Appendix to Journals of Senate and Assembly, State of Nevada, 1911, 25th Session, Vol. 2.

6. Weeks, F.B. "Geology and Mineral Resources of the Osceola Mining District, White Pine County, Nev," in U.S. Geological Survey, Bulletin 340, Contributions to Economic Geology, 1907, Part I-Metals and Nonmetals, Except Fuels. Washington, Government Printing Office, 1908.

7. "General Mining News-Nevada-White Pine." Engineering and Mining Journal, XLIV (December 3, 1887), 420.

8. "Official Reports-Osceola Gravel Mining Company." Engineering and Mining Journal, LI (May 30, 1891), 630-31.

9. "Mining in 1889." Mining and Scientific Press, LX (February 1, 1890), 81.

10. Report of the Surveyor-General and State Land Register of the State of Nevada for the Years 1889 and 1890, pp. 35-36, in Appendix to Journals of Senate and Assembly, State of Nevada, 1891, 15th Session.

11. "General Mining News-Nevada-White Pine County." Engineering and Mining Journal, LII (July 11, 1891), 55.

12. "General Mining News-Nevada-White Pine County." Engineering and Mining Journal, LII (August 1, 1891), 133.

13. "General Mining News-Nevada-White Pine County." Engineering and Mining Journal, LII (January 16, 1892), 117.

14. "General Mining News-Nevada-White Pine County." Engineering and Mining Journal, LIV (September 24, 1892), 304.

15. "General Mining News-Nevada-White Pine County." Engineering and Mining Journal, LVII (February 17, 1894), 160.

16. "General Mining News-Nevada-White Pine County." Engineering and Mining Journal, LX (July 13, 1895), 39.

17. "General Mining News-Nevada-White Pine County." Engineering and Mining Journal, LXII (September 19, 1896), 278.

UTM References

Osceola (East) Ditch - Zone 11

	Easting	Northing
A.	732160	4327050
B.	732620	4325800
C.	736400	4325800
D.	736400	4324240
E.	736880	4323900
F.	736920	4323410
G.	738350	4322400
H.	736560	4321560

Stella Lake Rock dam - Zone 11

732280 Easting

4320650 Northing

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number photos Page 1

Photograph No. 1

Photographer - Harlan D. Unrau
Date - September 1988
Original Negative - Denver Service Center, Western Team
View - Ditch near automobile turnout on Wheeler Peak Scenic Road; looking north-northeast

Photograph No. 2

Photographer - Harlan D. Unrau
Date - September 1988
Original Negative - Denver Service Center, Western Team
View - Ditch near automobile turnout on Wheeler Peak Scenic Road; looking south-southwest

Photograph No. 3

Photographer - Harlan D. Unrau
Date - September 1988
Original Negative - Denver Service Center, Western Team
View - Ditch near automobile turnout on Wheeler Peak Scenic Road; looking north-northeast

Photograph No. 4

Photographer - Harlan D. Unrau
Date - September 1988
Original Negative - Denver Service Center, Western Team
View - West end (Spring Valley Side) of ditch tunnel

Photograph No. 5

Photographer - Harlan D. Unrau
Date - September 1988
Original Negative - Denver Service Center, Western Team
View - West end (Spring Valley Side) of ditch tunnel

Photograph No. 6

Photographer - Harlan D. Unrau
Date - September 1988
Original Negative - Denver Service Center, Western Team
View - Ditch in Strawberry Creek Canyon; looking west-northwest

Photograph No. 7

Photographer - Harlan D. Unrau
Date - September 1988
Original Negative - Denver Service Center, Western Team
View - Stella Lake Rock Dam; looking south

Photograph No. 8

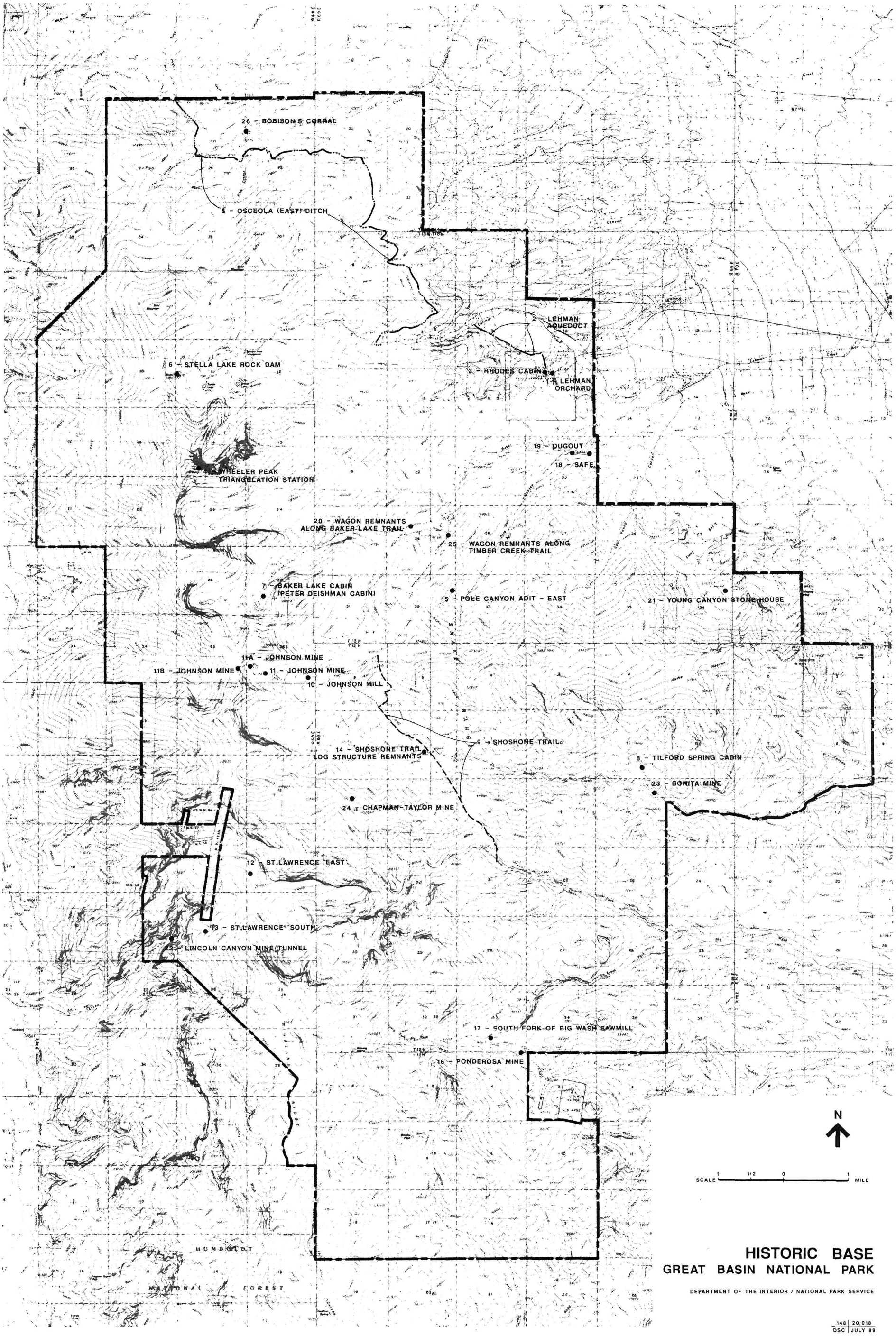
Photographer - Harlan D. Unrau
Date - September 1988
Original Negative - Denver Service Center, Western Team
View - Stella Lake Rock Dam; looking south

Photograph No. 9

Photographer - Harlan D. Unrau
Date - September 1988
Original Negative - Denver Service Center, Western Team
View - Stella Lake Rock Dam; looking south

APPENDIX FF

HISTORICAL BASE MAP



HISTORIC BASE
GREAT BASIN NATIONAL PARK

DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

148 | 20,018
DSC | JULY 89

ANNOTATED BIBLIOGRAPHY

MANUSCRIPT SOURCES

Baker, Nevada. Great Basin National Park.

Central Files.
Chief Ranger's Files.
Resource Management Files.
Superintendent's Files.
Vertical Files.

_____. Private Collection of Denys M. Baker.

"George W. Baker Reminiscences." Unpublished ms., ca. 1904 (Excerpts of ms. provided to author by Denys M. Baker).

Beltsville, Maryland. U.S. Department of Agriculture, National Agricultural Library.

Forest Service Photograph Collection.

Berkeley, California. University of California, Bancroft Library, Manuscripts Division.

"Annual Narrative Report, 1935, by C.R. Townsend, County Extension Agent, For the Period of November 1, 1934, to October 31, 1935, Ely, Nevada."

[Biographical Sketch of] Robert Briggs, ca. 1887.

"Data Regarding Progress and Growth of Nevada," ca. 1888.

Everts, Philetus. "Nevada History," n.d.

Lee, William. "A Copy of My Notes Taken While On A Journey Across the Plains from Washington to Genoa, Carson Valley, Utah, From April 11th May 9 (Monday) 1858 to Oct. 25th 1859."

Peet Family Papers, 1859-1878.

Scott, Joseph. Dictation, 1885.

University of Nevada, Agricultural Extension Division, White Pine County, Nevada. "Annual Report for the Period From November 1, 1934 to October 31, 1935," Helen M. Gillette, District Extension Agent.

Carson City, Nevada. State Library and Archives, Division of Archives and Records.

Assessment Books, White Pine County, 1891-1892.

Denver, Colorado. Denver Public Library.

Western History Collection.

Elko, Nevada. U.S. Forest Service, Humboldt National Forest, Headquarters.

Historical Files.

Ely, Nevada. U.S. Forest Service, Humboldt National Forest, Ely District Ranger Station.

Historical Files.

_____. White Pine County Courthouse.

Assessment Books.
County Newspaper Collection.
Land Records.

_____. White Pine County Library.

County Newspaper Collection Index.
Vertical Files.

_____. White Pine Public Museum, Inc.

County Newspaper Collection.
Photograph Collection.

Harpers Ferry, West Virginia. National Park Service, Harpers Ferry Center, National Park Service Archives.

National Park Service History Collection.

Lakewood, Colorado. National Park Service, Denver Service Center.

Great Basin National Park General Management Planning Team Files.

Technical Information Center Files.

_____. National Park Service, Rocky Mountain Regional Office, Land Resource Division.

Land Acquisition Maps, Nevada National Forest and Great Basin National Park.

Las Vegas, Nevada. University of Nevada, James R. Dickinson Library, Special Collections Department.

Cannon, Howard W., Papers.

Logan, Utah. Utah State University, Merrill Library, Department of Special Collections and Archives.

Hayden, Carl E., Collection.

Ridgeway Family Papers, Collection Ms. 8, Caine Archive of Intermountain Americana.

Ogden, Utah. U.S. Forest Service, Intermountain Regional Office.

Historic Photograph Collection.
Historical Files.

Provo, Utah. Brigham Young University, Harold B. Lee Library, Special Collections – Manuscripts.

George Washington Bean Journals.

Reno, Nevada. Nevada Historical Society.

Baring, Walter S., Papers.

Boak, Cada C., Collection.

Nevada Outdoor Recreation Association Collection.

Rhodes, Beatrice I. "The Unrivalled Beauties of Lehman's Cave." August 30, 1921.

"Shoshone Mining District, Filed Aug. 5th, 1882."

U.S. Census. Nevada. 1860, 1870, 1880.

Vertical Files.

Great Basin National Park.
Lehman Caves National Monument.
Wilderness Areas.

_____. University of Nevada, Nevada Bureau of Mines and Geology.

Nevada Mining District Collection.

Lincoln Mining District.
Minerva Mining District.
Osceola Mining District.
Snake Mining District.
Tungsten Mining District.

_____. University of Nevada, University Library.

Basque Collection.

Mines Library.

Oral History Project.

Bible, Alan. "Recollections of a Nevada Native Son: The Law, Politics, the Nevada Attorney General's Office, and the United States Senate." 1982.

Blair, Minnie P. "Days Remembered of Folson, and Placerville, California; Banking and Farming in Goldfield, Tonopah, and Fallon, Nevada." 1968.

Gemmill, Paul. "Recollections of Mining Ventures, Life In Eastern Nevada and the Nevada Mining Association." 1978.

Miles, Evelyn Madsen. "A Teacher's Perspective of Austin, Nevada: 1932-1936." 1983.

Sack, Ivan. "Forester Lost in the Woods, Sailor Lost on Rocks and Shoals: My Careers with the Forest Service and the U.S. Navy." 1978.

White, W. Wallace. "Caring for the Environment: My Work with Public Health and Reclamation in Nevada." 1980.

Special Collections Department.

Bible, Alan, Papers.

Boak, C.C. "Lehman Caves: The Wonder Under World." October 17, 1922.

Gallagher, Charles D. "Memoir and Autobiography." Typescript, 1965.

Hilp, Lester J. "Reminiscences of a White Pine County Native, Reno Pharmacy Owner, and Civic Leader." Typescript, 1968.

Venstrom, Cruz, and Mason, Howard. comps. "Agricultural History of Nevada." Typescript, Reno, 1944.

Works Progress Administration. Works Progress Recreation Division, Reno. "Nevada: A Pageant of Progress." 1938.

Rockville, Maryland. National Oceanic and Atmospheric Administration, Archives.

U.S. Coast and Geodetic Survey, Carlile P. Patterson, Superintendent, Section XVI, State: Nevada, 34098, Observations of Horizontal Directions, Locality – Jeff Davis Pk. Station, White Pine County . . . 1882, Chief of Party – William Eimbeck. 5 vols.

Sacramento, California. California State Library.

California Section.

Salt Lake City, Utah. Church of Jesus Christ of the Latter-Day Saints, Historical Department, Library – Archives.

"Biographical Sketch of Edson Barney."

Journal History of the Church.

Manuscript History of the Church.

_____. State of Utah, Department of Administrative Services, Division of Archives and Records Service.

Secretary of Utah Territory, Executive Record Books, Series 242, Reels 1-2, 1850-1871.

Secretary of Utah Territory, Territorial Executive Papers, Series 241, Reels 1-4, 1849-

1872.

San Bruno, California. National Archives and Records Administration, San Francisco Branch.

Record Group 49, Records of the Bureau of Land Management.

Record Group 79, Records of the National Park Service.

Record Group 95, Records of the U.S. Forest Service.

San Marino, California. Huntington Library, Manuscript Department.

Mitchell Papers, 1858-1887.

Washington, D.C. National Archives and Records Administration.

Record Group 48, Records of the Office of the Secretary of the Interior.

Record Group 49, Records of the Bureau of Land Management.

Record Group 79, Records of the National Park Service.

_____. National Park Service, Washington Office, History Division.

Historical Files.
Park Files

_____. National Park Service, Washington Office, Legislation Division.

Legislation Files.

There is a wealth of manuscript material available concerning the topics addressed in this study. The materials in Great Basin National Park are particularly helpful for study of the early settlement of Snake Valley, the development of Lehman Caves and Lehman Caves National Monument, and the movement to establish the park. The "George W. Baker Reminiscences" contribute valuable insights into the development of the Baker Ranch and other early ranging operations in Snake Valley. The Assessment Books for White Pine County at the Nevada State Archives provide data on the development and settlement of Snake and Spring valleys during the early 1890s. The files at the headquarters of Humboldt National Forest in Elko are helpful in understanding the historical development of Nevada and Humboldt national forests, while the files at the Ely District Ranger Station provide a wealth of information on the organizational and operational evolution of the Baker and Ely ranger districts and Snake divisions of the two national forests. The White Pine County Courthouse contains the most comprehensive county newspaper collection, an index (only up through 1907) for which is located in the White Pine County Library. A variety of Park Service reports, drawings, and maps relating to Lehman Caves National Monument and Great Basin National Park are found in the Denver Service Center's Technical Information Center. Included in the Great Basin National Park General Management Planning Team files are old Forest Service records and documentation collected by that bureau's researchers concerning the history of the present-day park area. The papers of leading Nevada politicians, such as the Howard W. Cannon Papers at the University of Nevada, Las Vegas, the Walter S. Baring Papers at the Nevada Historical Society, and the Alan Bible Papers at the University of Nevada, Reno, contribute to an understanding of the political ramifications of the movement to establish Great Basin National Park. Photographs of the

park area dating back to the 1920s may be found at the National Agricultural Library in Beltsville, Maryland, and the U.S. Forest Service's Intermountain Regional Office in Ogden, Utah. Documents concerning early Mormon penetration of the park area may be found at Brigham Young University, the Historical Department of the Church of Jesus Christ of the Latter-Day Saints, and the Utah Historical Society. The Nevada Historical Society contains the Cada C. Boak Collection, which provides data on the designation and early development of Lehman Caves National Monument, and the Nevada Outdoor Recreation Association, which contains considerable information on the movement to establish the national park. The Nevada Mining District Collection at the Nevada Bureau of Mines and Geology has numerous historic files on each of the mining districts in the Snake Range, while the California Section in the California State Library has useful early newspapers chronicling the settlement and mining development in the park area. The most extensive documentary materials relating to the historical development of Lehman Caves National Monument and Nevada and Humboldt national forests are found at the National Archives in Washington, D.C., and San Bruno, California.

NEWSPAPERS

Daily Alta California. February 12, March 27, April 21, 28, May 9, 1869.

Desert News. August 9, 1986.

Elko Independent. January 12, 1985.

Ely Daily Times. 1922, 1924, 1931, 1936, 1955, 1956, 1958, 1959, 1960, 1961, 1966, 1967, 1968, 1986.

Ely Mining Expositor. January 5, 1907.

Ely Mining Record. June 8, 1907.

Ely Record. July 20, 1920; April 13, 1923; April 24, May 2, June 13, July 4, 1924; March 2, 1928; July 30, 1933; March 10, 1950.

Ely Weekly Mining Expositor. November 14, 1907.

Genoa Weekly Courier. September 4, 1885.

Intermountain Pay Dirt. November 1983.

Las Vegas Review Journal. April 16, October 29, 1986.

Los Angeles Times. August 5, 1986.

Milford News. August 11, 1949.

Mining Record Newspaper. June 4, 1986.

Nevada Appeal. January 29, 1967.

Nevada State Journal. February 15, May 10, 1959.

Reno Evening Gazette. April 29, 1959; June 14, 1986.

Reno Gazette and Journal. January 24, 1982.

Sacramento Daily Union. July 1, 24, 29, 1868.

Salt Lake Tribune. February 8, 1931; April 7, 1957; July 14, 1967.

Ward Weekly Reflex. June 10, 21, 1877; August 20, 1881; September 20, 1882; March 28, 1883.

White Pine News. 1869, 1870, 1874, 1883, 1885, 1886, 1888, 1889, 1890, 1891, 1893, 1894, 1896, 1897, 1899, 1900, 1901, 1902, 1904, 1905, 1906, 1907.

The most comprehensive collection of White Pine County newspapers is housed in the basement of the White Pine County Courthouse. An index for county newspapers up through 1907 is located in the White Pine County Library. The library and the White Pine Public Museum also have some county newspapers. The Nevada State Library has the most extensive statewide collection of Nevada newspapers.

MAPS

Cadwallader, Allen. comp. Map of the White Pine Mining District – Map of the White Pine Range. San Francisco, H.H. Bancroft & Company, 1869. (Map on file in Manuscripts Division, Bancroft Library, University of California, Berkeley.)

Gibbes, Charles Drayton. Map of White Pine and Other Mining Districts in the Counties of Lander and Nye. San Francisco, Warren Holt, 1869. (Map on file in Manuscripts Division, Bancroft Library, University of California, Berkeley.)

Map of an Exploring Expedition to the Rocky Mountains in the Year 1842 and to Oregon and North California in the Years 1843-44 by Brevet Capt. J.C. Fremont of the Corps of Topographical Engineers Under the Orders of Col. J.J. Abert, Chief of the Topographical Bureau. (Map on file in Manuscripts Division, Bancroft Library, University of California, Berkeley.)

Map Showing Detailed Topography of the Country Traversed by the Reconnaissance Expedition Through Southern & Southeastern Nevada in Charge of Lieut. Geo. M. Wheeler, U.S. Engineers, Assisted by Lieut. O.W. Lockwood, Corps of Engineers USA, 1869. P.W. Hamel, Chief Topographer and Draughtsman. (Map on file in Special Collections Division, Marriott Library, University of Utah, Salt Lake City).

Tagliabue & Barker. Map of White Pine Mining District, White Pine County, Nevada. Treasure City, Nev. San Francisco, G.T. Brown & Co., 1869. (Map on file in Manuscripts Division, Bancroft Library, University of California, Berkeley.)

The Fremont map is significant as being associated with the explorer's designation of the Wasatch-Sierra Nevada region as the Great Basin, and the Wheeler map shows early settlements, roads, and ranches in Snake and Spring valleys. The other maps provide valuable geographical data concerning the White Pine mining rush.

LEGISLATIVE DOCUMENTS

Nevada National Forest, Nevada, By the President of the United States of America, A Proclamation, February 10, 1909 (Proclamation No. 839-35 Stat. 2220).

Nevada National Forest (Second Proclamation), By the President of the United States of America, A Proclamation, October 28, 1912 (Proclamation No. 1221-37 Stat. 1766).

Public Law 99-565 (100 Stat. 3181), October 27, 1986. (Establishing act for Great Basin National Park).

Forest Reserve Act (26 Stat. 1095), March 3, 1891.

PUBLISHED WORKS

Books

Abbe, Donald R. *Austin and the Reese River Mining District: Nevada's Forgotten Frontier.* Reno, University of Nevada Press, 1985.

Albright, Horace M., and Taylor, Frank J. *"Oh, Ranger!": A Book About the National Parks.* Reprint ed. Golden, Colorado, Outbooks, 1980.

American Annual Cyclopedia and Register of Important Events of the Year 1871. New York, 1872.

Angel, Myron. ed. *History of Nevada, With Illustrations and Biographical Sketches of its Prominent Men and Pioneers.* Oakland, California, Thompson & West, 1881 [Reprint ed., New York, Arno Press, 1973.]

Armstrong, Robert D. comp. *A Preliminary Union Catalog of Nevada Manuscripts.* Reno, University of Nevada Library, 1967.

Arrington, Leonard J. *Great Basin Kingdom: An Economic History of the Latter Day Saints, 1830-1900.* Cambridge, Harvard University Press, 1958.

Ashbaugh, Don. *Nevada's Turbulent Yesterday.* Los Angeles, Westernlore Press, 1963.

Bancroft, Hubert Howe. *The Native Races of the Pacific States of North America, Vol. I, Wild Tribes.* New York, D. Appleton and Company, 1875.

_____. *The Works of Hubert Howe Bancroft, Volume XXV, History of Nevada, Colorado and Wyoming, 1540-1888.* San Francisco, The History Company, Publishers, 1890.

Barnes, Will C. *Western Grazing Grounds and Forest Ranges.* New York, Arno Press, 1979.

Bartlett, Richard A. *Great Surveys of the American West.* Norman, University of Oklahoma Press, 1962.

Beckwith, Frank. *Millard and Nearby.* Springville, Utah, Art City Publishing Company, 1947.

Billington, Ray Allen. *Westward Expansion: A History of the American Frontier.* New York, The Macmillan Company, 1949.

Boak, Cada C. *Lehman Caves: The Wonder Index World.* Tonopah, n.p., 1922.

Bolton, Herbert E. trans. and ed. *Pageant in the Wilderness: The Story of the Escalante Expedition to the Interior Basin, 1776.* Salt Lake City, Utah Historical Society, 1950.

_____. *The Early Explorations of Father Garcés on the Pacific Slope.* New York, Macmillan, 1917.

Bowles, Samuel. *Across the Continent: A Summer's Journey to the Rocky Mountains, The Mormons, and the Pacific States, With Speaker Colfax.* Springfield, Massachusetts, Samuel Bowles & Company, 1866.

Brodie, Fawn M. ed. *The City of the Saints and Across the Rocky Mountains to California by Richard F. Burton.* New York, Alfred A. Knopf, 1963.

Browne, J. Ross. *Resources of the Pacific Slope.* New York, D. Appleton and Company, 1869.

Cadwallader, Allen. comp. *Map and Guide to the White Pine Mines and the Region of Country Adjacent, In Eastern Nevada . . . . Compiled by Gen. Allen Cadwallader With An Elaborate Map.* San Francisco, H.H. Bancroft and Company, April 1869.

Carlson, Helen S. *Nevada Place Names.* Reno, University of Nevada Press, 1974.

Chavez, Fray Angelico, trans., and Warner, Ted J., ed. *The Dominguez-Escalante Journal.* Provo, Brigham Young University Press, 1977.

Cline, Gloria Griffin. *Exploring the Great Basin.* Norman, University of Oklahoma Press, 1963.

_____. *Peter Skene Ogden and the Hudson's Bay Company.* Norman, University of Oklahoma Press, 1974.

Cowes, Elliott. ed. *On the Trail of a Spanish Pioneer: The Diary and Itinerary of Francisco Garcés.* 2 vols. New York, F.P. Harper, 1900.

Creel, Cecil W. *A History of Nevada Agriculture.* Reno, University of Nevada, 1964.

Creer, Leland Hargrave. *The Founding of an Empire: The Exploration and Colonization of Utah, 1776-1856.* Salt Lake City, Bookcraft, 1947.

Dale, Harrison Clifford. *The Ashley-Smith Explorations and the Discovery of a Central Route to the Pacific, 1822-1829.* Cleveland, The Arthur H. Clark Company, 1918.

Dana, Samuel Trask, and Fairfax, Sally K. *Forest and Range Policy: Its Development in the United States.* 2d ed. New York, McGraw-Hill Book Company, 1980.

Davis, Sam P. ed. *The History of Nevada.* 2 vols. Reno, The Elmo Publishing Co., 1913.

Day, Stella H., and Ekins, Sebrina. comps. *Milestones of Millard: A Century of History of Millard County, 1851-1951.* Springville, Utah, Art City Publishing Company, 1951.

Days of the Old West. Deseret, Utah, 1961.

D'Azevedo, Warren L. ed. *Great Basin, Volume II, Handbook of North American Indians.* Washington, Smithsonian Institution, 1986.

Dictionary of American History. Rev. ed. New York, Charles Scribner's Sons, 1976. Vol. II.

Douglass, William A., and Bilbao, Jon. *Amerikanuak: Basques in the New World.* Reno, University of Nevada Press, 1975

Duffus, R.L. *The Santa Fe Trail.* Albuquerque, University of New Mexico, 1930.

Eardley, A.J. *Structural Geology of North America.* 2d ed. 1962.

Egan, Ferol. *Sand in a Whirlwind.* New York, Doubleday & Co., 1972.

Egan, William M. comp. *Pioneering the West, 1846 to 1879: Major Howard Egan's Diary.* Richmond, Utah, Howard R. Egan Estate, 1917.

Elliott, Russell R. *History of Nevada.* Lincoln, University of Nebraska Press, 1973.

_____. *Nevada's Twentieth-Century Mining Boom: Tonopah-Goldfield-Ely.* Carson City, University of Nevada Press, 1965.

_____, and Poulton, Helen. *Writings on Nevada: A Selected Bibliography.* Nevada Studies in History and Political Science, No. 5. Carson City, University of Nevada Press, 1963.

Estergreen, M. Morgan. *Kit Carson: A Portrait in Courage.* Norman, University of Oklahoma Press, 1962.

Evans, Albert S. *White Pine: Its Geographical Location, Topography, Geological Formation; Mining Laws; Mineral Resources; Towns; Surroundings; Climate, Population, Altitude and General Characteristics; Condition of Society; How to Reach There . . . .* San Francisco, Alta California Printing House, 1869.

Fairbanks, Merwin G. ed. *Selected Personality Profiles.* 2 vols. Provo, Brigham Young University, 1976.

Fath, E.A. *The Elements of Astronomy.* New York, McGraw-Hill Book Company, Inc., 1955.

Fenneman, Nevin M. *Physiography of Western United States.* New York and London, McGraw-Hill Book Company, Inc., 1931.

Fletcher, Fred N. *Early Nevada: The Period of Exploration, 1776-1848.* Reno, A. Carlisle & Co., 1929.

Folkes, John G. *Nevada Newspapers, A Bibliography: A Compilation of Nevada History, 1854-1864.* Nevada Studies in History and Political Science, No. 6. Carson City, University of Nevada Press, 1964.

Forbes, Jack D. *Nevada Indians Speak.* Reno, University of Nevada Press, 1967.

Fowler, Don, and Koch, David. "The Great Basin," in Gordon L. Bender, ed. *Reference Handbook on the Deserts of North America.* Westport, Connecticut, Greenwood Press, 1982. Pp. 7-63.

Fremont, John Charles. *Memoirs of My Life.* Chicago and New York, Belford, Clarke & Company, 1887.

Galvin, John. ed. *A Record of Travels in Arizona and California, 1775-1776.* San Francisco, John Howell Books, 1965.

Geographical Memoir Upon Upper California In Illustration of His Map of Oregon and California by John C. Fremont. Washington, 1848.

Georgetta, Clel. *Golden Fleece in Nevada.* Reno, Venture Publishing Company, 1972.

Glass, Mary Ellen. *Silver and Politics in Nevada: 1892-1902.* Reno, University of Nevada Press, 1969.

Goetzmann, William H. *Army Exploration in the American West: 1803-1863.* New Haven, Yale University Press, 1959.

Greever, William S. *The Bonanza West: The Story of the Western Mining Rushes, 1848-1900.* Norman, University of Oklahoma Press, 1963.

Griggs, Jeannette S. *Let There Be Light: Mt. Wheeler Power REA Cooperative 999.* Forest Grove, Oregon, Times Litho Print, 1974.

Hafen, LeRoy R. ed. *The Mountain Men and the Fur Trade of the Far West.* 9 vols. Glendale, California, The Arthur H. Clark Company, 1966.

_____. ed. *Trappers of the Far West: Sixteen Biographical Sketches.* Lincoln and London, University of Nebraska Press, 1983.

_____, and Hafen, Ann W. *The Old Spanish Trail.* Glendale, California, Arthur H. Clark, 1954.

Halladay, Orlynn J., and Peacock, Var Lynn. *The Lehman Caves Story.* Baker, Nevada, Lehman Caves Natural History Association, 1972.

Harris, Robert P. *Nevada Postal History: 1861 to 1972.* Las Vegas, Nevada Publications, 1973.

Hays, Samuel P. *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920.* Cambridge, Harvard University Press, 1959.

Heizer, Robert F., and Baumhoff, Martin A. *Prehistoric Rock Art of Nevada and Eastern California.* Berkeley, University of California Press, 1962.

Hibbard, Benjamin H. *A History of Public Land Policies.* New York, The Macmillan Company, 1924.

Higgins, L. James. *A Guide to the Manuscript Collections at the Nevada Historical Society.* [Carson City], Nevada Historical Society, 1975.

Horne, Flora Diana Bean. *Autobiography of George Washington Bean: A Utah Pioneer of 1847 and His Family Records.* Salt Lake City, Utah Printing Company, 1945.

Hulse, James W. *Lincoln County, Nevada, 1864-1909: History of a Mining Region.* Nevada Studies in History and Political Science, No. 9. Reno, University of Nevada Press, 1971.

Hunt, Samuel F. *Mining Resources and History of White Pine Mining District, Nevada.* [Ely, Nevada, Ely Mining Record Print, 1910.]

Jackson, W. Turrentine. *Treasure Hill: Portrait of a Silver Mining Camp.* Tucson, University of Arizona Press, 1963.

_____. ed. *Twenty Years On the Pacific Slope: Letters of Henry Eno from California and Nevada, 1848-1871.* New Haven and London, Yale University Press, 1965.

J. Ross Browne's Illustrated Mining Adventures: California & Nevada, 1863-1865. Reprint ed. Balboa Island, California, Paisano Press, 1961.

Kelsey, Michael R. *Hiking and Climbing in the Great Basin National Park.* Provo, Kelsey Publishing, 1988.

Laxalt, Robert. *Nevada: A Bicentennial History.* New York, W.W. Norton & Company, Inc., 1977.

Leigh, Rufus Wood. *Nevada Place Names: Their Origin and Significance.* Salt Lake City, Desert News Press, 1964.

Lewis, Oscar. *The Town That Died Laughing: The Story of Austin, Nevada; Rambunctious Early-Day Mining Camp, and Of Its Renowned Newspaper, The Reese River Reveille.* Reno, University of Nevada Press, 1986.

Lillard, Richard G. *Desert Challenge: An Interpretation of Nevada.* New York, Alfred A. Knopf, 1949.

Lincoln, Francis Church. *Mining Districts and Mineral Resources of Nevada.* Reno, Nevada Newsletter Publishing Company, 1923.

Lingenfelter, Richard E. *The Newspapers of Nevada, 1858-1958: A History and Bibliography.* San Francisco, John Howell-Books, 1964.

McMurtrie, Douglas C. comp. *Nevada Mining Laws: The Text of the Local Laws and Regulations Enacted By Four Local Mining Districts in Nevada, 1863.* Chicago, The Black Cat Press, 1935.

Mack, Effie Mona. *Nevada: A History of the State from the Earliest Times Through the Civil War.* Glendale, California, The Arthur H. Clark Company, 1936.

_____, Anderson, Idel, and Singleton, Beulah E. *Nevada Government.* Caldwell, Idaho, The Caxton Printers, 1953.

Malone, Dumas. ed. *Dictionary of American Biography.* New York, Charles Scribner's Sons, 1934. Vol. VII.

Map of the White Pine Silver District, Nevada, With the Surrounding Country, By Chas. Drayton Gibbes, With A Description From the "Alta California," By Albert S. Evans. San Francisco, Warren Holt, 1869.

Mellanbruch, Laura Lehman. *The Genealogy of the Lehman Family.* Willcox, Arizona, Ruth Mellanbruch, 1943.

Miller, B.F. "Nevada In the Making," in *Nevada State Historical Society Papers, 1923-1924.*

Molinelli, Lambert. *Eureka and Its Resources: A Complete History of Eureka County, Nevada.* Reno, University of Nevada Press, 1982.

Moorhead, Max L. ed. *Commerce of the Prairies by Joseph Gregg.* Norman, University of Oklahoma Press, 1954.

Mordy, Brooke D., and McCaughey, Donald L. *Nevada Historical Sites.* Reno, Desert Research Institute, 1968.

Morgan, Dale L. *Jedediah Smith and the Opening of the West.* Lincoln, University of Nebraska Press, 1953.

_____. *The Humboldt: Highroad of the West.* New York, Farrar and Rinehart, 1943.

Morris, Richard B. ed. *Encyclopedia of American History: Bicentennial Edition.* New York, Harper & Row, Publishers, 1976.

Muir, John. "Nevada's Timber Belt," October 1878, and "Glacial Phenomena in Nevada," November 1878, in *Steep Trials: California-Utah-Nevada-Washington-Oregon-The Grand Cañon,* ed. by William F. Bade. Boston and New York, Houghton Mifflin Company, 1918.

Murbarger, Nell. *Ghosts of the Glory Trail.* Palm Desert, California, Desert Magazine Press, 1956.

Myrick, David F. *Railroads of Nevada and Eastern California.* 2 vols. Berkeley, Howell-North Books, 1962.

Nevins, Allan. *Fremont: Pathmarker of the West.* New York, London, and Toronto, Longmans, Green and Co., 1955.

_____. ed. *Narratives of Exploration and Adventure by John Charles Fremont.* New York, London, and Toronto, Longmans, Green & Co., 1956.

Norcross, C.A. *Agricultural Nevada.* San Francisco, Sunset Magazine Homeseekers Bureau, 1911.

Oregon and California: The Exploring Expedition to the Rocky Mountains, Oregon and California by Brevet Col. J.C. Fremont. Buffalo, George H. Derby and Co., 1851.

Paher, Stanley W. *Nevada: An Annotated Bibliography.* Las Vegas, Nevada Publications, 1980.

_____. *Nevada Ghost Towns & Mining Camps.* Berkeley, Howell-North Books, 1970.

Patterson, Edna B., Ulph, Louise A., and Goodwin, Victor. *Nevada's Northeast Frontier.* Sparks, Nevada, Western Printing & Publishing Co., 1969.

Paul, Rodman Wilson. *Mining Frontiers of the Far West, 1848-1880.* Albuquerque, University of New Mexico Press, 1963.

Phillips, Fred M. *Desert People and Mountain Men: Exploration of the Great Basin, 1824-1865.* Bishop, California, Chalfant Press, 1977.

Pinchot, Gifford. *Breaking New Ground.* New York, Harcourt, Brace & Co., 1947.

Poll, Richard D. ed. *Utah's History.* Provo, Brigham Young University Press, 1978.

Poulton, Helen J. *Index to Thompson and West's History of Nevada.* Bibliographical Series, No. 6. Carson City, University of Nevada Press, 1966.

Powell, John J. *Nevada: The Land of Silver.* San Francisco, Bacon & Company, 1876.

Rannells, A. Karl. ed. *Mines Register, Volume XXIX, 1970-1971.* New York, The American Metal Market Co., 1972.

Read, Effie O. *White Pine Lang Syne: A True History of White Pine County, Nevada.* Denver, Big Mountain Press, 1965.

Report of the Exploring Expedition to the Rocky Mountains by John Charles Fremont. Readex Microprint Corporation, 1966.

Robertson, Frank Chester, and Harris, Beth Kay. *Boom Towns of the Great Basin.* Denver, Sage Books, 1962.

Robinson, Glen O. *The Forest Service: A Study in Public Land Management.* Baltimore, Johns Hopkins University Press, 1975.

Rogers, Garry F. *Then and Now: A Photographic History of Vegetation Change in the Central Great Basin Desert.* Salt Lake City, University of Utah Press, 1982.

Rowley, William D. *U.S. Forest Service Grazing and Rangelands: A History.* College Station, Texas A&M University Press, 1985.

Runte, Alfred. *National Parks: The American Experience.* Lincoln, University of Nebraska Press, 1979.

Sabin, Edwin L. *Kit Carson Days: 1809-1868.* Chicago, A.C. McClurg and Company, 1914.

Sawyer, Byrd Wall. *Nevada Nomads: A Story of the Sheep Industry.* San Jose, Harlan-Young Press, 1971.

Scrugham, James G. ed. *Nevada: A Narrative of the Conquest of a Frontier Land.* 3 vols. Chicago and New York, The American Historical Society, Inc., 1935.

Smith, Delbert H. comp. *White Pine County From the Beginning.* Ely, Nevada, White Pine Chamber of Commerce and Mines, 1961.

Steen, Harold K. *The U.S. Forest Service: A History.* Seattle, University of Washington Press, 1976.

Stocking, Hobart E. *The Road to Santa Fe.* New York, Hastings House, 1971.

Stott, Clifford L. *Search for Sanctuary: Brigham Young and the White Mountain Expedition.* Salt Lake City, University of Utah Press, 1984.

The Silver Mines of Nevada. New York, William C. Bryant & Co., 1864.

The Shortest Route to California Illustrated by a History of Explorations of the Great Basin of Utah with its Topographical and Geological Character and Some Account of the Indian Tribes by Brevet Brig.-General J.H. Simpson. Philadelphia, J.B. Lippincott & Co., 1869.

Todd, Edgeley W. ed. *The Adventures of Captain Bonneville, U.S.A., in the Rocky Mountains and the Far West, Digested from His Journal by Washington Irving.* Norman, University of Oklahoma Press, 1961.

Truett, Velma A. *On the Hoof in Nevada.* Los Angeles, Gehrett-Truett-Hall, 1950.

Twain, Mark. *Roughing It.* Reprint ed. Cutchogue, New York, Buccaneer books, 1986.

Van Hise, Charles R., and Havenmeyer, Loomis. eds. *Conservation of Our Natural Resources.* New York, The Macmillan Company, 1933.

Wagner, W.F. ed. *The Narrative of Zenas Leonard.* New York, Burrows Brothers Company, 1904.

Warner, C.C. comp. *Products, Resources, Opportunities for Capital and Advantages to Emigrants of Nevada.* Reno, Gazette Book and Job Print, 1889.

Watson, Douglas Sloane. *West Wind: The Life Story of Joseph Reddeford Walker, Knight of the Golden Horseshoe.* Los Angeles, 1934.

Weed, Walter Harvey. *International Edition: The Mines Handbook.* New York City, W.H. Weed, 1920.

_____. *International Edition: The Mines Handbook.* Tuckahoe, New York, The Mines Handbook Company, 1922.

Wentworth, Edward Norris. *America's Sheep Trails.* Ames, Iowa State College Press, 1948.

Wheat, Carl I. *Mapping the Trans-Mississippi West: 1540-1861.* 6 vols. San Francisco, Institute of Historical Cartography, 1957-63.

Wishart, David. *The Fur Trade of the American West, 1807-1840: A Geographical Synthesis.* Lincoln and London, University of Nebraska Press, 1979.

Wittwer, E.E. *Nevada Agriculture: Bulletin 210.* Reno, University of Nevada, Max C. Fleischmann College of Agriculture, May 1960.

Wren, Thomas. ed. *A History of the State of Nevada, Its Resources and People.* New York, Lewis Publishing Co., 1904.

Young, James A. *Cattle In the Cold Desert.* Logan, Utah State University Press, 1985.

A variety of books contributed invaluable insights for this study. Useful works for an understanding of the history of Nevada included those by Angel, Bancroft, Carlson, Davis, Elliott, Harris, Laxalt, Lingenfelter, Mack, Miller, Mordy and McCaughey, Morgan, Paher, Patterson, Ulph, and Goodwin, Scrugham, Wren, and Young. The books by Arrington, Horne, Poll, and Stott were helpful in terms of Mormon history. Forest Service histories included the works by Barnes, Dana, Pinchot, Robinson, Rowley, and Steen. The books by Bartlett, Goetzmann, Muir, and Simpson provided an understanding of scientific and military surveys of the Great Basin. The subject of early exploration in the Great Basin was illuminated in the works by Bolton, Chavez, Cline, Cowes, Creer, Fletcher, Galvin, Todd, Wagner, and Wheat. Data on the activities of fur trappers and mountain men was found in the books by Dale, Estergreen, Hafen, Phillips, Sabin, Watson, and Wishart, while Fremont's explorations are detailed in his own works as well as those by Nevins. The works by

Browne, Cadwallader, Evans, Glass, Greever, Hunt, Jackson, Lincoln, Paul, and Powell were especially helpful on the topic of mining, while those by Creel, Douglass and Bilbao, Fairbanks, Georgetta, Norcross, Sawyer, Truett, Warner, Wentworth, and Wittwer were useful for the study of agriculture. Local and White Pine County history topics were aided by reference to the books by Day and Ekins, Read, and Smith. The publications by Boak and Mellanbruch provided insight into the development of Lehman Caves National Monument and the life of Absalom S. Lehman. The works by D'Azevedo, Forbes, and Heizer provided data on the topic of Great Basin and Nevada Native Americans.

Periodicals

Allen, James B., and Warner, Ted J. "The Gosuite Indians in Pioneer Utah." *Utah Historical Quarterly,* XXXIX (Spring 1971), 162-177.

Auerbach, Herbert E. "Father Escalante's Route." *Utah Historical Quarterly,* IX (July, October 1941), 109-28, and XI (January, April, July, October 1943), 1-132.

Armstrong, Robert D. "Sources for Nevada History: A Survey of Institutional Collections Outside the State." *Nevada Historical Society Quarterly,* XIV (Fall 1971), 33-38.

Bettinger, Robert L., and Baumhoff, Martin A. "The Numic Spread: Great Basin Cultures in Competition." *American Antiquity,* XLVII (July 1982), 485-503.

Bird, John W. "A History of Water Rights in Nevada." *Nevada Historical Society Quarterly,* XVIII (Spring 1975), 27-32.

_____. "A History of Water Rights in Nevada." *Nevada Historical Society Quarterly,* XIX (Spring 1976), 27-32.

Boak, Cada C. "Dedication of Lehman Caves National Monument: Ascent and Perilous Descent of Mount Wheeler, August 1922." *Nevada Historical Society Quarterly,* XVI (Summer 1973), 101-111.

Carithers, Joseph F. "Exploring the Baker Lake Trail." *National Parks Magazine,* XXXII (April-June 1958), 71-73.

_____. "Western Park Notes." *National Parks Magazine,* XXXII (January-March 1958), 17-18.

Colley, Charles C. "The Struggle of Nevada Indians to Hold Their Lands, 1847-1870." *Indian Historian,* VI (Summer 1973), 5-17.

"Conservation News Briefs." *National Parks Magazine,* XXXIII (December 1959), 13.

Currey, Donald R. "An Ancient Bristlecone Pine Stand in Eastern Nevada." *Ecology,* XLVI (Summer 1965), 564-66.

Dees, Harry C. ed. "The Journal of George W. Bean." *Nevada Historical Society Quarterly,* XV (Fall 1972), 2-29.

Elliott, Russell R. "The Early History of White Pine County, Nevada, 1865-1887." *Pacific Northwest Quarterly,* XXX (April 1938), 145-68.

Engineering and Mining Journal, 1870-80, 1891, 1893-98, 1900, 1920, 1922-33, 1935.

Evans, Albert S. "Up in the Po-go-nip." *Overland Monthly,* II (March 1869), 273-74.

Fletcher, F.N. "Eastbound Route of Jedediah S. Smith, 1827." *California Historical Quarterly,* III (January 1924), 344-49.

Forbes, Jack D. "White-Indian Relations In Nevada Since the 1870s: A Century of Disappointment." *Pacific Historian,* X (Spring 1966), 15-21.

Fowler, Catherine S. and Don D. "Notes on the History of the Southern Paiutes and Western Shoshonis." *Utah Historical Quarterly,* XXXIX (Spring 1971), 95-113.

Georgetta, Clel. "Sheep In Nevada." *Nevada Historical Society Quarterly,* VIII (Summer 1965), 14-38.

Hafen, LeRoy R. "Mountain Men Before the Mormons." *Utah Historical Society,* XXVI (October 1958), 307-326.

Harrington, Edna Parker. "More Kachina Pictographs in Nevada." *Masterkey,* VII (March 1933), 48-50.

Harrington, Johns. "Adventure in a Nevada Cave." *Desert Magazine,* VI (May 1943), 18-19.

Harrington, M.R. "American Horses and Ancient Men in Nevada." *Masterkey,* VIII (November 1934), 165-69.

_____. "More Cave-Hunting." *Masterkey,* VI (September 1932), 120-21.

_____. "Relics of an Abandoned Colony." *Masterkey,* VI (September 1932), 115-16.

_____. "Report of the Curator." *Masterkey,* IX (March 1935), 58.

Heald, Weldon F. "National Park Proposed for Nevada." *National Parks Magazine,* XXXI (July-September 1957), 99-102.

_____. "Nevada's Wheeler Peak and Great Basin Range – A Possible National Park." *Nature Magazine,* LI (June-July 1958), 314-17, 330.

_____. "The Proposed Great Basin Range National Park." *Sierra Club Bulletin,* XLI (December 1956), 46, 51-52.

_____. "Wheeler Peak and Its Glacier." *Nevada Highways and Parks,* XVIII (1958), 3-6.

Hill, Joseph J. "Ewing Young in the Fur Trade of the Far Southwest, 1822-1834." *Oregon Historical Quarterly,* XXIV (March 1923), 1-35.

Hodge, F.W. "Report of the Director." *Masterkey,* XI (March 1937), 42-52.

King, Volney. "Millard County, 1851-1875: Part 3." *Utah Humanities Review,* I (July 1947), 261-78.

Jackson, Donald Dale. "The Great Basin Is a Lonely Place for a National Park." *Smithsonian,* XVIII (November 1987), 69-81.

Lambert, Darwin. "Great Basin – Pro and Con." *National Parks Magazine,* XXXIV (February 1959), 13.

_____. "Great Basin 'Sky Island.'" *National Parks Magazine,* XXXIII (August 1959), 2.

_____. "Over the Years With Great Basin Park." *National Parks Magazine,* XL (June 1966), 12-16.

_____. "Wheeler Peak Scenic Area." *National Parks Magazine,* XXXIII (April 1959), 13.

Lange, Arthur L. "Stream Piracy and Cave Development Along Baker Creek, Nevada." *Western Speleological Institute, Bulletin Number 1* (July 1958), 3-19.

Lee, Donald E., and Bastron, Harry. "Allanite from the Mount Wheeler Area, White Pine County, Nevada." *American Mineralogist,* XLVII (November-December 1963), 1327-31.

_____, and Erd, Richard C. "Phenakite from the Mount Wheeler Area, Snake Range, White Pine County, Nevada." *American Mineralogist,* XLVIII (January-February 1963), 189-93.

"Lehman Caves National Monument." *American Forestry,* XXVIII (March 1922), 190.

Merriam, C. Hart. "Earliest Crossing of the Deserts of Utah and Nevada to Southern California: Route of Jedediah S. Smith in 1826." *California Historical Quarterly,* II (October 1923), 228-36.

Mining and Scientific Press, 1869-90, 1899, 1901-19, 1921.

"Nevada." *Annual Mining Review and Stock Ledger,* July 1876, 20.

"Nevada Has Diverse Park System." *Nevada Highways and Parks,* I (March 1936), 1-4.

Nevins, Allan. "A Record Filled With Sunlight." *American Heritage,* VII (June 1956), 12-15, 18-19, 106-07.

Olsen, C.J. "The Proposed Invasion at Mt. Wheeler." *American Forests,* LXV (February 1959), 17-19, 40, 42.

Orr, Betty. "Baker's Dozens." *Nevada,* XXX (Fall 1970), 18, 20, 22, 24-25, 42.

Polenberg, Richard. "The Great Conservation Contest." *Forest History,* January 1967, 13-23.

"Results of Field Investigations for the Proposed Great Basin National Park, Nevada." *Sierra Club Reprint Series, No. 1,* San Francisco, November 26, 1959.

Simpson, Ruth. "Mark Raymond Harrington: Father of Nevada Archeology." *Nevada Historical Society Quarterly,* VIII (Fall-Winter 1965), 16-19.

Starkweather, Virginia. "Prospecting for Social Security." *Survey Midmonthly,* LXXV (October 1939), 311.

_____. "Social Security in Nevada, IV: In White Pine County, Nevada." *Proceedings of the National Conference of Social Work, 1939,* 483-84.

"The Conservation Docket." *National Parks Magazine,* XXXIX (April 1965), 21.

"The Wheeler Survey in Nevada." *Harpers New Monthly Magazine,* LV (June 1877), 65-76.

Vanderburg, William O. "Placer Mining In Nevada." *University of Nevada Bulletin,* XXX (May 15, 1936).

Wheeler, S.M. "A Pueblo II Site in the Great Basin Area of Nevada." *Masterkey,* X (November 1956), 207-11.

_____. "An Archeological Expedition to Nevada." *Masterkey,* XI (November 1937), 194-97.

_____. "The Jean L'Empereur In Nevada." *Masterkey,* XIII (November 1939), 216-20.

Wogan, Maurya. "Subterranean Wonderland." *Nevada Magazine,* III (September 1947), 39-40.

Young, James A., and Budy, Jerry D. "Historical Use of Nevada's Pinyon-Juniper Woodlands." *Journal of Forest History,* July 1979, 113-21.

Various periodical articles were helpful in the preparation of this study. The articles by Allen and Warner, Bettinger, Colley, Forbes, and Fowler provided insights on the subject of Native Americans in Nevada and White Pine County. The articles by Armstrong and Bird provided information on Nevada historical research and water rights, respectively, while those by Elliott and King aided in the history of Snake Valley and White Pine County. The articles by Auerbach, Fletcher, Merriam, and Nevins provided data on early exploration, while those by Hafen and Hill offered information on the activities of mountain men and fur trappers. The articles by Dees, Georgetta, and Young and Budy were helpful concerning the topics of Mormons, agriculture, and forestry, respectively. Numerous articles in the *Engineering and Mining Journal* and the *Mining and Scientific Press,* as well as the articles by Evans, Lee and Bastron, Lee and Erd, and Vanderburg were extremely helpful in understanding the mining history of the Snake Range region. The articles by Boak and Wogan provided data on Lehman Caves, those by the Harringtons, Hodge, Simpson, and Wheeler were helpful in understanding archeological research activities in the Baker Caves-Lehman Caves area, and those by Carithers, Currey, Heald, Jackson, Lambert, and Olsen contained data on the movement to establish Great Basin National Park.

Government Publications

Annual Report of the State Controller, 1911, in Appendix to Journals of Senate and Assembly, State of Nevada, 1913, 26th Session, Vol I.

Annual Report of the State Controller, State of Nevada, 1916.

Annual Report of the State Inspector of Mines, 1910, in Appendix to Journals of Senate and Assembly, State of Nevada, 1911, 25th Session, Vol. 2.

Annual Report of the State Inspector of Mines, 1912, in Appendix to Journals of Senate and Assembly, State of Nevada, 1913, 26th Session, Vol. I.

Annual Report of the Surveyor General of the State of Nevada For the Year A.D. 1866. Carson City, 1867.

Annual Reports of the Nevada Tax Commission, 1940, 1950.

Annual Reports of the Secretary of the Interior, 1895, 1902.

Annual Reports of the Superintendent of the U.S. Coast and Geodetic Survey, 1879-90.

Biennial Reports of the Nevada Tax Commission, 1919-20; 1929-30.

Biennial Report of the State Engineer, 1909-1910, in Appendix to Journals of Senate and Assembly, State of Nevada, 1911, 25th Session, Vol. 2.

Biennial Report of the State Fish Commission, 1911-1912, in Appendix to Journals of Senate and Assembly, State of Nevada, 1913, 26th Session, Vol. 3.

Biennial Report of the State Mineralogist of the State of Nevada For the Years 1871 and 1872, in Appendix to Journals of Senate and Assembly, State of Nevada, Sixth Session.

Biennial Report of the State Mineralogist of the State of Nevada For the Years 1873 and 1874, in Appendix to Journals of Senate and Assembly, State of Nevada, 7th Session.

Biennial Report of the State Mineralogist of the State of Nevada For the Years 1875 and 1876, in Appendix to Journals of Senate and Assembly, State of Nevada, 8th Session, Vol. I.

Biennial Report of the State Mineralogist of the State of Nevada For the Years 1877 and 1878, in Appendix to Journals of Senate and Assembly, State of Nevada, 9th Session.

Biennial Report of the Surveyor-General and State Land Register, 1899-1900, in Appendix to Journals of Senate and Assembly, State of Nevada, 1901, 20th Session.

Biennial Report of the Surveyor-General and State Land Register, 1901-1902, in Appendix to Journals of Senate and Assembly, State of Nevada, 1903, 21st Session.

Biennial Report of the Surveyor-General and State Land Register, 1905-1906, in Appendix to Journals of Senate and Assembly, State of Nevada, 1907, 23d Session.

Biennial Report of the Surveyor-General and State Land Register, 1909-1910, in Appendix to Journals of Senate and Assembly, State of Nevada, 1911, 25th Session.

Biennial Report of the Surveyor-General and State Land Register, 1913-1914, in Appendix to Journals of Senate and Assembly, State of Nevada, 1915, 27th Session, Vol. I.

Brackett, Albert G. "The Shoshones; or Snake Indians, Their Religion, Superstitions, and Manners," in *Annual Report of the Board of Regents of the Smithsonian Institution, Showing the Operations, Expenditures, and Condition of the Institution For the Year 1879.* Washington, Government Printing Office, 1880.

Census of the Inhabitants of the State of Nevada, 1875, in Appendix to Journals of Senate and Assembly, State of Nevada, 8th Session, Vol. 2.

Congressional Record.

House. 85th Cong., 2d Sess., Vol. 104, Pt. 5, April 1, 1958.

Senate. 85th Cong., 2d Sess., Vol. 104, Pt. 5, April 1, 1958.

House. 86th Cong., 1st Sess., Vol. 105, Pt. 14, September 9, 1959.

Senate. 86th Cong., 1st Sess., Vol. 105, Pt. 14, September 9, 1959.

Senate. 87th Cong., 1st Sess., Vol. 107, Pt. 6, May 3, 1961.

House. 87th Cong., 1st Sess., Vol. 107, Pt. 6, May 8, 1961.

Senate. 87th Cong., 2d Sess., Vol. 108, Pt. 1, January 23, 25, 1962.

House. 87th Cong., 2d Sess., Vol. 108, Pt. 1, January 26, 1962.

House. 88th Cong., 1st Sess., Vol. 109, Pt. 9, June 26, 1963.

Senate. 89th Cong., 1st Sess., Vol. 111, Pt. 1, January 15, 1965.

House. 89th Cong., 1st Sess., Vol. 111, Pt. 4, March 11, 1965.

House. 89th Cong., 1st Sess., Vol. 111, Pt. 13, July 26, 1965.

House. 99th Cong., 2d Sess., Vol. 132, No. 56, April 30, 1986.

Senate. 99th Cong., 2d Sess., Vol. 132, No. 132, September 30, 1986.

Senate. 99th Cong., 2d Sess., Vol. 132, No. 133, October 1, 1986.

House. 99th Cong., 2d Sess., Vol. 132, No. 136, October 6, 1986.

Senate. 99th Cong., 2d Sess., Vol. 132, No. 139, October 9, 1986.

Extensions of Remarks. 99th Cong. 2d Sess., Vol. 132, No. 144, October 17, 1986.

Fifth Annual Report of the United States Geological Survey to the Secretary of the Interior, 1883-84. Washington. Government Printing Office, 1885.

Kearney, W.M. State Engineer. comp. *How to Appropriate the Public Waters of the State of Nevada, 1911.* Carson City, 1911.

Nevada Bureau of Mines. Bulletin 57. *Geology of the White Pine Mining District, White Pine County, Nevada,* by Fred L. Humphrey. Reno, University of Nevada, 1960.

Nevada Bureau of Mines. Report 7. *Outline of Nevada Mining History.* Reno, Mackay School of Mines, University of Nevada, 1964.

Nevada Bureau of Mines and Geology. Bulletin 85. *Geology and Mineral Resources of White Pine County, Nevada.* Reno, Mackay School of Mines, University of Nevada, 1976.

Nevada Bureau of Mines and Geology. Special Publication MI-1986. *The Nevada Mineral Industry, 1986.* Reno, Mackay School of Mines, University of Nevada, 1987.

Nevada State Bureau of Immigration. comp. *Nevada and Her Resources: A Brief Sketch of the Advantages and Possibilities of the State, and the Opportunities and Inducements Offered to Capitalists and Homeseekers.* Carson City, State Printing Office, 1894.

Nevada State Bureau of Mines. Geology and Mining Series No. 38. *Nevada's Metal and Mineral Production (1859-1940, Inclusive),* by Bertrand F. Couch and Jay A. Carpenter, University of Nevada Bulletin, XXXVII (November 1, 1943).

Political History of Nevada. 4th ed. Carson City, 1960.

Powell, John Wesley, and Ingalls, George W. *On the conditions of the Ute Indians of Utah; The Paiutes of Utah, Northern Arizona, Southern Nevada, and Southeastern California; The Western Shoshones of Idaho and Utah; and the Western Shoshones of Nevada; and Report Concerning Claims of Settlers in the Mo-a-pa Valley, Southeastern Nevada.* Washington, Government Printing Office, 1874.

Raymond, Rossiter W. *Statistics of Mines and Mining in the States and Territories West of the Rocky Mountains.* Washington, Government Printing Office, 1870.

"Remarks at the Convention Center in Las Vegas, Nevada, September 28, 1963," in *Public Papers of the Presidents of the United States, John F. Kennedy, Containing the Public Messages, Speeches, and Statements of the President, January 1 to November 22, 1963.* Washington, Government Printing Office, 1964.

Report of the Director of the National Park Service to the Secretary of the Interior for the Fiscal Year Ended June 30, 1921, and the Travel Season 1921. Washington, Government Printing Office, 1921.

Reports of the Director of the Mint Upon the Production of the Precious Metals in the United States. Washington, Government Printing Office, 1880-1910.

Report of Explorations Across the Great Basin of the Territory of Utah for a Direct Wagon-Route from Camp Floyd to Genoa, in Carson Valley, in 1859, by Captain J.H. Simpson. Washington, Government Printing office, 1876.

Report of the Mineralogist of the State of Nevada for the Years 1869 and 1870. Carson City, Charles L. Perkins, State Printer, 1871.

Report of the Surveyor General and State Land Register of the State of Nevada For the Years 1871 and 1872, in Appendix to Journals of Senate and Assembly, State of Nevada, Sixth Session.

Report of the Surveyor General and State Land Register of the State of Nevada For the Years 1873 and 1874, in Appendix to Journals of Senate and Assembly, State of Nevada, Seventh Session.

Report of the Surveyor General and State Land Register of the State of Nevada For the Years 1879 and 1880, in Appendix to Journals of Senate and Assembly, State of Nevada, 10th Session.

Report of the Surveyor General and State Land Register of the State of Nevada For the Years 1889 and 1890, in Appendix to Journals of Senate and Assembly, State of Nevada, 1891, 15th Session.

"Special Message to the Congress on Conservation, March 1, 1962," in *Public Papers of the Presidents of the United States, John F. Kennedy, Containing the Public Messages, Speeches, and Statements of the President, January 1 to December 31, 1962.* Washington, Government Printing Office, 1963.

"Special Message to the Congress on Conservation and Restoration of Natural Beauty, February 8, 1965," in *Public Papers of the Presidents of the United States, Lyndon B. Johnson, Containing the Public Messages, Speeches, and Statements of the President, 1965 (In Two Books), Book I – January 1 to May 31, 1965.* Washington, Government Printing Office, 1966.

"Special Message to the Congress Proposing Measures to Preserve America's Natural Heritage, February 23, 1966," in *Public Papers of the Presidents of the United States, Lyndon B. Johnson, Containing the Public Messages, Speeches, and Statements of the President, 1966 (In Two Books), Book I – January 1 to June 30, 1966.* Washington, Government Printing Office, 1967.

Stager, H.K. "A New Beryllium Deposit at the Mount Wheeler Mine, White Pine County, Nevada," in Short Papers in the Geological Sciences, Geological Survey Research 1960, *Geological Survey Professional Paper 400-B.* Washington, Government Printing Office, 1960.

State of Nevada. Department of Conservation and Natural Resources. *Water Resources – Reconnaissance Series, Report 34, Water Resources Appraisal of the Snake Valley Area Utah and Nevada,* by James W. Wood and F. Eugene Rush. November 1965.

State of Nevada. *Revised Laws, 1912.* Carson City, 1912.

"Statement for Management, Lehman Caves National Monument," January 10, 1977.

"Statement for Management, Lehman Caves National Monument," Revised January 1984.

Stuart, E.E. *Nevada's Mineral Resources.* Carson City, State Printing Office, 1909.

"Title 43 – Public Lands: Interior, Public Land Order 1355," November 5, 1956, in *Federal Register,* November 9, 1956.

Twenty-First Annual Report of the United States Geological Survey to the Secretary of the Interior, 1899-1900, Part IV. Washington, Government Printing Office, 1901.

U.S. Army. Engineer Department. *Preliminary Report Concerning Explorations and Surveys Principally In Nevada and Arizona . . . From Brigadier General A.A. Humphreys, Chief of Engineers, Conducted Under the Immediate Direction of 1st Lieut. George M. Wheeler, Corps of Engineers, 1871.* Washington, Government Printing Office, 1872.

_____. _____. *Preliminary Report Upon A Reconnaissance Through Southern and Southeastern Nevada, Made In 1869, By First Lieut. Geo. M. Wheeler, Corps of Engineers, U.S. Army, Assisted by First Lieut. D.W. Lockwood, Corps of Engineers, U.S. Army.* Washington, Government Printing Office, 1875.

_____. _____. *Report Upon United States Geographical Surveys West of the One Hundredth Meridian, in charge of Capt. Geo. M. Wheeler, Corps of Engineers, U.S. Army, Under the Direction of the Chief of Engineers, U.S. Army.* Washington, Government Printing Office, 1875-1889. 8 vols.

U.S. Bureau of Mines. *Minerals Yearbooks.* Washington, Government Printing Office, 1933-1969.

U.S. Coast and Geodetic Survey. *Geodesy: The Transcontinental Triangulation and the*

American Arc of the Parallel. Washington, Government Printing Office, 1900.

_____. *Triangulation and Primary Traverse for 1906, 1907, and 1908.* Washington, Government Printing Office, 1909.

U.S. Congress. House. *Message from the President of the United States Transmitting an Executive Order for Certain Regroupings, Consolidations, Transfers, and Abolitions of Executive Agencies and Functions Thereof.* H. Doc. 69, 73d Cong., 1st Sess., 1933.

_____. _____. *Reports of Explorations and Surveys, to Ascertain the Most Practicable and Economical Route for a Railroad From the Mississippi River to the Pacific Ocean, Made Under the Direction of the Secretary of War, in 1853-54.* Vol. II, H.R. Ex. Doc. 91, 33d Cong., 3d Sess., 1855.

_____. _____. Committee on Interior and Insular Affairs. *Additions to the National Wilderness Preservation System, Hearing Before the Subcommittee on Public Lands of the Committee on Interior and Insular Affairs, House of Representatives, Ninety-Ninth Congress, First Session, on H.R. 1686, H.R. 3302, H.R. 3304, Nevada Wilderness Proposals, Hearing Held in Washington, D.C., October 10, 1985.* Serial No. 99-19, Part I. Washington, Government Printing Office, 1986.

_____. _____. _____. *Designating Certain National Forest Lands in the State of Nevada for Inclusion in the National Wilderness Preservation System, And for Other Purposes.* H. Rept. 99-427, Part 1, 99th Cong., 1st Sess., 1985.

_____. _____. _____. *Proposed Great Basin National Park, Nev., Submitted as an accompanying part of the Communication from the Secretary of the Interior Transmitting Reports on Studies of New Areas with Potential for Inclusion in the National Park System.* H. Doc. 95-264, 95th Cong., 1st Sess., 1977.

_____. _____. _____. *Proposed Great Basin National Park, Nev., Submitted as an accompanying part of the Communication from the Secretary of the Interior Transmitting Reports on Studies of New Areas with Potential for Inclusion in the National Park System.* H. Doc. 96-12, 96th Cong., 1st Sess., 1979.

_____. _____. _____. *Providing That the Secretary of the Interior Shall Investigate and Report to the Congress As To the Advisability of Establishing a National Park in Wheeler Peak-Lehman Caves Area of the Snake Range in Eastern Nevada.* H. Rept. 2526, 85th Cong., 2d Sess., 1958.

_____. Senate. Committee on Appropriations. *Letter from the Secretary of War.* S. Ex. Doc. 65, 42d Cong., 2d Sess., 1872.

_____. _____. Committee on Energy and Natural Resources. *Establishing the Great Basin National Park and Miscellaneous Boundary Adjustments in the National Park System, Hearing Before the Subcommittee on Public Lands, Reserved Water and Resource Conservation of the Committee on Energy and Natural Resources, United States Senate, Ninety-Ninth Congress, Second Session, on. . . . S. 2506, A Bill to Establish a Great Basin National Park in the State of Nevada, and for other purposes. . . . July 18, 1986.* Washington, Government Printing Office, 1987.

_____. _____. *Establishing the Great Basin National Park in the State of Nevada.* S. Rept. 99-458, 99th Cong., 2d Sess., 1986.

_____. _____. Committee on Interior and Insular Affairs. *Great Basin National Park Hearing Before the Subcommittee on Public Lands of the Committee on Interior and Insular Affairs, United States Senate, Eighty-Seventh Congress, First Session on S. 1760. . . . August 3, 1961.* Washington, Government Printing Office, 1961.

_____. _____. _____. *Great Basin National Park In Nevada: Hearings Before the Subcommittee on Public Lands of the Committee on Interior and Insular Affairs, United States Senate, Eight-Sixth Congress, First Session on S. 2664. . . . Ely, Nevada, December 5 and 7, 1959.* Washington, Government Printing Office, 1960.

_____. _____. _____. *Great Basin National Park Nev.* S. Rept. 983, 87th Cong., 1st Sess., 1961.

U.S. Department of Agriculture. Forest Service. *Humboldt National Forest Land and Resource Management Plan, Final Environmental Impact Statement.* [1986.]

_____. _____. *The Bristlecone Pine: Nature's Oldest Living Thing.* 1983.

_____. _____. *The Rise of Multiple-Use Management in the Intermountain West: A History of Region 4 of the Forest Service,* by Thomas G. Alexander. May 1987.

_____. _____. *Things You Need to Know When Searching for Gold in the National Forests.* August 1980.

_____. _____. Intermountain Region. *Humboldt National Forest.* 1959.

_____. _____. _____. *National Forest Recreation in Nevada.* [1964.]

_____. _____. Intermountain Region, in cooperation with Nevada Department of Wildlife. *A Program to Manage and Improve Fish and wildlife Habitats on the National Forests in Nevada.* 1979.

U.S. Department of Commerce. Bureau of the Census. *Fourteenth Census of the United States: 1920. . . . Population: Nevada.* Washington, Government Printing Office, 1921.

U.S. Department of Commerce and Labor. Bureau of the Census. *Thirteenth Census of the United States Taken In the Year 1910, Statistics for Nevada.* Washington, Government Printing Office, 1913.

U.S. Department of the Interior. Bureau of Land Management. *Nevada's Economic Profile: State Economic Structure. . . . Natural Resource Use.* Reno, 1974.

_____. _____. Ely District Office. *Schell Resource Area: Decision Summary and Record of Decision.* [1983.]

_____. _____. Nevada State Office. *Taylor Grazing Act In Nevada, 1934-1984.* Reno, 1984.

_____. Census Office. *Statistics of the Population of the United States at the Tenth Census* (June 1, 1880). Washington, Government Printing Office, 1883.

_____. National Park Service. *Centennial Edition, National Park Service Officials, March 1, 1972.*

_____. _____. *Proclamations and Orders Relating to the National Park Service Up to January 1, 1945.* Washington, Government Printing Office, 1947.

_____. _____. *Reconnaissance Survey, Great Basin, Nevada/California.* January 1980.

_____. _____. *Study of Alternatives, Great Basin, Snake Range/Spring Valley Study Area, Nevada.* February 1981.

_____. _____. National Survey of Historic Sites and Buildings. *Theme XIX, Conservation of Natural Resources.* 1963.

U.S. Forest Service. Humboldt National Forest. *The Proposed Glacier Scenic Area.* East Ely, Nevada, 1959.

U.S. Geological Survey. Bulletin 208. *Descriptive Geology of Nevada South of the Fortieth Parallel and Adjacent Portions of California,* by Josiah Edward Spurr. Washington, Government Printing Office, 1903.

_____. *Contributions to Economic Geology, 1902.* Washington, Government Printing Office, 1903.

_____. Geological Survey Bulletin 1356. *Placer Gold Deposits of Nevada,* by Maureen G. Johnson. Washington, Government Printing Office, 1973.

_____. Geological Survey Professional Paper 610. *Principal Gold-Producing Districts of the United States,* by A.H. Koschmann and M.H. Bergendahl. Washington, Government Printing Office, 1968.

_____. Geological Survey Professional Paper 668. *Hybrid Granitoid Rocks of the Southern Snake Range, Nevada,* by Donald E. Lee and Richard E. Van Loeman. Washington, Government Printing Office, 1971.

_____. *Hydrology of Stock-Water Development in the Ely Grazing District, Nevada, Geological Survey Water-Supply Paper 1475-L.* Washington, Government Printing Office, 1963.

_____. *Mineral Resources of the United States.* Washington, Government Printing Office, 1883-1924.

_____, and Nevada Bureau of Mines. Bulletin 65. *Mineral and Water Resources of Nevada.* Reno, Mackay School of Mines, University of Nevada, 1964.

_____, in cooperation with the Utah State Engineer and the Nevada State Engineer. *Utah State Engineer, Technical Publication No. 14, Water-Resources Appraisal of the Snake Valley Area, Utah and Nevada,* by James W. Wood and F. Eugene Rush. 1965.

U.S. War Department. *War of the Rebellion Records.* Series I, Vol. L, Part I (E.M. Balser to the Adjutant of Fort Churchill, Nevada, October [20], 1861), p. 667.

University of Nevada. Agricultural Extension Service. *Bulletin 77, Setting Up Taylor Grazing Districts In Nevada,* by Thomas E. Buckman. June 30, 1937.

Weeks, F.B. "Geology and Mineral Resources of the Osceola Mining District, White Pine County, Nev.," in U.S. Geological Survey, Bulletin 340, *Contributions to Economic Geology, 1907, Part I – Metals and Nonmetals, Except Fuels.* Washington, Government Printing Office, 1908.

_____. "Tungsten Deposits in the Snake Range, White Pine County, Eastern Nevada," in U.S. Geological Survey, Bulletin 340, *Contributions to Economic Geology, 1907, Part I – Metals and Nonmetals, Except Fuels.* Washington, Government Printing Office, 1908.

Whitebread, Donald H. and Lee, Donald E. "Geology of the Mount Wheeler Mine Area, White Pine County, Nevada," in Short Papers in the Geologic and Hydrologic Sciences, Articles 147-292, Geological Survey Research 1961, *Geological Survey Professional Paper 424-C.* Washington, Government Printing Office, 1961.

Writer's Program of the Works Projects Administration. *Nevada: A Guide to the Silver State.* Portland, Oregon, Binfords & Mort, 1940.

Government publications were among the most useful research materials in the preparation of this study. The annual and biennial reports of various Nevada officials, many of which were published in the Appendixes to the Journals of the Senate and Assembly of the State of Nevada, provide considerable data on mining, agricultural, and socioeconomic development in Nevada and White Pine County. The *Annual Reports of the Superintendent of the U.S. Coast and Geodetic Survey,* as well as that agency's publications on *Geodesy* and *Triangulation and Primary Traverse,* were the best sources on the Wheeler Peak triangulation station. A wealth of data on mining development in the Snake Range was found in the publications by the Nevada Bureau of Mines, Nevada Bureau of Mines and Geology, Director of the Mint, U.S. Bureau of Mines, and U.S. Geological Survey. The reports by Simpson and Wheeler detail their extensive military exploration activities in the Snake Range vicinity. The publications by the Departments of Commerce and Commerce and Labor provided valuable census data on White Pine County. The U.S. Department of Agriculture and U.S. Forest Service publications, especially the study entitled *Rise of Multiple-Use Management in the Intermountain West,* provided considerable data on Forest Service management of the Snake Division of Nevada and Humboldt national forests. The *Congressional Record* and the reports by the U.S. House Committee on Interior and Insular Affairs and the U.S. Senate Committees on Energy and Natural Resources and Interior and Insular Affairs provided valuable information on the movement to establish Great Basin National Park. The published documents of the Department of the Interior aided in an understanding of the activities of the Bureau of Land Management and the National Park Service in Snake and Spring valleys and at Lehman Caves National Monument.

THESES AND DISSERTATIONS

Baugh, Alexander L. "John C. Fremont's Expeditions Into Utah: An Historical Analysis of the Explorer's Contributions and Significance to the Region." Unpublished M.A. thesis, Brigham Young University, 1986.

BeDunnah, Gary P. "A History of the Chinese in Nevada, 1855-1904." Unpublished M.A. thesis, University of Nevada, Reno, 1966.

Bourne, John Michael. "Early Mining in Southwestern Utah and Southeastern Nevada, 1864-1872: The Meadow Valley, Pahranagat, and Pioche Mining Rushes." Unpublished M.A. thesis, University of Utah, 1973.

Cheel, Chester Walter. "Historic Development of Western Utah, Between 118 and 120 Degrees West Longitude, 1827-1861." Unpublished M.A. thesis, University of Nevada, Reno, 1939.

Elliott, Russell Richard. "The Early History of White Pine County, Nevada: 1865-1887." Unpublished M.A. thesis, University of Washington, 1938.

Hershiser, Beulah. "The Adjustment of the Boundaries of Nevada." Unpublished M.A. thesis, University of Nevada, Reno, 1911.

King, Buster L. "The History of Lander County." Unpublished M.A. thesis, University of Nevada, Reno, 1954.

Law, Wesley R. "Mormon Indian Missions – 1855." Unpublished M.S. thesis, Brigham Young University, 1959.

Merrifield, Robert B. "Nevada, 1859-1881: The Impact of an Advanced Technological Society Upon a Frontier Area." Unpublished Ph.D. dissertation, University of Chicago, 1957.

Miller, Eunice. "The Timber Resources of Nevada." Unpublished M.A. thesis, University of Nevada, Reno, 1924.

Ramsey, Bobby Gene. "Scientific Exploration and Discovery in the Great Basin From 1831-1891." Unpublished Ph.D. dissertation, Brigham Young University, 1972.

Short, Shelton Hardaway. "A History of the Livestock Industry Prior to 1900." Unpublished M.A. thesis, University of Nevada, Reno, 1965.

Smith, Harold Truman. "New Deal Relief Programs in Nevada, 1933 to 1935." Unpublished Ph.D. dissertation, University of Nevada, Reno, 1972.

Snow, William James. "The Great Basin Before the Coming of the Mormons." Unpublished Ph.D. dissertation, University of California, Berkeley, 1923.

Vitaliano, Charles Joseph. "Tungsten Deposits of the Snake Range, White Pine County Nevada." Unpublished M.A. thesis, Columbia University, 1938.

Waite, Robert Starr. "The Proposed Great Basin National Park: A Geographical Interpretation of the Southern Snake Range, Nevada." Unpublished Ph.D. dissertation, University of California, Los Angeles, 1974. Parts I and II.

Among the most useful theses and dissertations is that by Waite, hitherto the most comprehensive geographical and historical work of its kind for the Snake Range. The study by Elliott was particularly helpful for an understanding of White Pine County historical development. The theses by BeDunnah, Hershiser, Miller, and Short provided data on various facets of Nevada history, while the dissertations by Bourne and Merrifield were very useful in terms of Nevada mining historical development.

TECHNICAL REPORTS

Aikens, C. Melvin. *Indian Petroglyphs from White Pine County, Nevada, Miscellaneous Paper Number 19.* University of Utah Anthropological Papers, Number 99, 1978.

Baker, Denys M. "Early History of Snake Valley." n.d.

Clewlow, C. William, Jr. ed. *Four Rock Art Studies.* Socorro, New Mexico, Ballena Press, 1978.

Fowler, Don D. *Final Report, Assessment of Cultural Resources of Lehman Caves National Monument, White Pine County, Nevada.* University of Nevada System, Desert Research Institute, Human Systems Center, Technical Report No. 4, 1977.

_____. *No. 2: Archeological Survey in Eastern Nevada, 1966, and No. 3: The Archeology of Newark Cave, White Pine County, Nevada.* University of Nevada System, Desert Research Institute, Technical Report Series S-H, Social Sciences & Humanities, Publications Nos. 2 and 3, 1968.

Inventory of Natural Landmarks of the Great Basin, by Vernon B. Bostick and Wesley E. Niles, Department of Biological Sciences, and William A. McClellan, Edward H. Oakes, John R. Wilbanks, Department of Geoscience, The University of Nevada, Las Vegas. Compiled for the National Park Service, United States Department of the Interior. August 20, 1975.

James, Steven R. ed. *Prehistory, Ethnohistory, and History of Eastern Nevada: A Cultural Resources Summary of the Elko and Ely Districts.* Contract No. YA-553-CTO-1025 between the Bureau of Land Management and the University of Utah Archeological Center, Reports of Investigations 81-5, April 1981.

Lehman Cave National Monument, Orchard Management Plan. July 1986.

Madsen, David B., and O'Connell, James F. eds. *Man and Environment in the Great Basin, SAA Papers No. 2.* Washington, Society for American Archaeology, 1982.

Malouf, Carling. "The Gosiute Indians." Paper Number Three, in *University of Utah, Department of Anthropology, Anthropological Papers, Numbers 1-8.* November 1950.

Office of George W. Malone, United States Senate, Nevada. "Resources Report, White Pine County, Nevada, 1958."

Oulman, Steve. "Copper, Cows, and Crown Jewels: A Case Study Analyzing the Context of Debate Surrounding Establishment of Great Basin National Park In Terms of Regional History, National Park Politics, and Community Attitudes Toward Economic Development." A Terminal Project presented to the Department of Planning, Public Policy and Management, University of Oregon. August 1987.

Price, Barry A. "An Evaluation of Lower Osceola Historic Site (26 WP 1674), White Pine County, Nevada." Prepared for Bureau of Land Management, Ely District, Under Contract No. NV 040-CT5-001, August 1985.

_____. "Boom Towns and Copper Camps: An Archeological Survey of Historic Sites in White Pine County, Nevada." Prepared for State of Nevada, Division of Historic Preservation and Archeology, April 1987.

Rudy, Jack R. *Archeological Survey of Western Utah.* University of Utah, Department of Anthropology, Anthropological Papers, Number 12, November 1953.

Stewart, Omer C. "The Western Shoshone of Nevada and the U.S. Government, 1863-1950," in *Selected Papers from the 14th Great Basin Anthropological Conference.* Socorro, New Mexico, Ballena Press, 1978.

Taylor, Dee Calderwood. *The Garrison Site: A Report of Archeological Excavations in Snake Valley, Nevada-Utah.* University of Utah, Department of Anthropology, Anthropological Papers, No. 16, May 1954.

U.S. Bureau of Mines. "Flotation of Bertrandite and Phenacite From Mount Wheeler, Nev., Beryllium Ore, Report of Investigation 5875," by Richard Havens, W.I. Nissin, and J.B. Rosenbaum. 1961.

_____. "Investigation of Tungsten Metals Corp. Deposits (Minerva Mining District), White Pine County, Nev., Report of Investigation 4648," by E.W. Newman, Robert W. Geeham, and Russell R. Trengove. March 1950.

_____. "Mineral Investigation of the Highland Ridge Roadless Area, White Pine County, Nevada." MLA 68-83, by S. Don Brown. 1983.

_____. "Mineral Investigation of the Wheeler Peak Roadless Area, White Pine County, Nevada." MLA 56083, by Steven E. Kluender. 1983.

U.S. Department of the Interior. Bureau of Land Management. *Cultural Resource Record of the Moriah Planning Area, Ely District BLM,* by Peggy Gaudy. May 1979.

_____. _____. Nevada Office. *Current Status of CRM Archaeology in the Great Basin.* Cultural Resource Series, Monograph No. 9, by C. Melvin Aikens, ed., August 1986.

_____. National Park Service. *Administrative History: Expansion of the National Park Service in the 1930s,* by Harlan D. Unrau and G. Frank Williss. September 1983.

_____. _____. "Field Investigation Report, Wheeler Peak Area, Nevada." August 1956.

_____. _____. *Lehman Caves. . . . Its Human Story,* by Keith A. Trexler. Updated through 1975 by NPS staff, 1977.

_____. _____. *Master Plan of Lehman Caves National Monument, December 1964.*

_____. _____. Region Four. "Field Investigation Report, Lehman Caves-Wheeler Peak, October 13 to 17, 1958, October 29 to November 13, 1958, Portion of Southern Section of Snake Range, White Pine County, Nevada." February 1959.

_____. _____. Western Archeological and Conservation Center. *An Archeological Overview of Great Basin National Park,* by Krista Deal. Publications in Anthropology No. 49, 1988.

_____. _____. _____. *Archeological Survey and Site Assessment at Great Basin National Park,* by Susan J. Wells. Publications in Anthropology No. 53, 1989. (Draft.)

_____. _____. Western Archeological Center. *Archeological Summaries for Great Basin New Area Studies: Monitor Valley, Railroad Valley, Snake Range, Lassen-Applegate Trail,* by Yvonne G. Stewart, 1980.

Zeier, C.D. *The White Pine Power Project: Cultural Resource Considerations, Vol. I, A Culture History Overview and Predictive Model for the Existence of Cultural Resources in White Pine County, Nevada.* Los Angeles, Dames and Moore, 1981.

Of the cited reports the most significant for the purposes of this study were those by Gaudy, James, Oulman, and Trexler. The Gaudy and James studies provided considerable data on the cultural history of the Snake Range area, while the Oulman and Trexler works were among the best in terms of analyzing the movement to establish Great Basin National Park and the historical development of Lehman Caves National Monument, respectively. The studies by the U.S. Bureau of Mines contributed invaluable data on mining development in the area, while those by the National Park Service chronicled that bureau's efforts in establishing the national park.

INTERVIEWS

Personal interview with Denys Baker, Baker, Nevada, September 15, 1988. (Local rancher and historian)

Personal interview with Wally Cuchine, Ely, Nevada, June 14, 1988. (White Pine Public Museum)

Personal interview with Paul Demeule, Ely, Nevada, June 14, 1988. (U.S. Forest Service Ely District Ranger)

Personal interview with Virginia Eldridge, Baker, Nevada, September 15, 1988. (Local postmistress and long-time resident)

Personal interview with Owen Gonder, Garrison, Utah, September 17, 1988. (Local ranger and long-time resident)

Personal interview with Joseph Griggs, Jr., Baker, Nevada, June 29, 1987. (Local resident and long-time resident; now deceased)

Personal interview with Ronald H. Healey, Ely, Nevada, June 15, 1988. (White Pine County Historical Society member and Ely photographer)

Personal interview with Barry A. Price, Ely, Nevada, June 30, 1987. (Local archeologist and researcher)

Personal interview with Sunny Roberts, Baker, Nevada, September 17, 1988. (Local long-time resident)

Personal interview with John Zancanella, Ely, Nevada, June 30, 1987. (Bureau of Land Management archeologist)

Telephone interview with Wesley Jordan, Baker, Nevada, September 17, 1988. (Local retired rancher and long-time resident)

Telephone interview with Kathy A. Kaiser, Osceola, Nevada, September 17, 1988. (Local resident and former U.S. Forest Service interpretive planner)

Telephone interview with Evy Seelinger, Carson City, Nevada, June 16, 1987. (Nevada State Museum archivist)

MISCELLANEOUS

Ad Hoc Faculty Committee, University of Nevada, Reno. "An Evaluation of the Research Possibilities of the Snake Range In Eastern Nevada. [1968.]

American Forestry Association. "The Forest Reservation Policy." ca. 1897.

Gould, Martha, and Kerschner, Joan. comps. "A Bibliography of Mining in Nevada and the West: Books in the Nevada State Library Collection. Carson City, Public Services Division, Nevada State Library, January 1974.

Letter, Denys Baker to author, January 28, 1990.

McLane, Alvin R. "Exploration and Early Mapping in Eastern Nevada.' Paper Presented at the White Pine Public Library, Ely, Nevada. April 5, 1988.

The paper by McLane was helpful because of its analysis of the early history of the Snake Range vicinity and the letter from Baker provided data on recent developments in Snake and Spring valleys.

LIST OF REPOSITORIES CONSULTED OR WHERE RESEARCH WAS CONDUCTED

Baker, Nevada. Great Basin National Park (89311)
Telephone – 702-234-7331

Beltsville, Maryland. U.S. Department of Agriculture, National Agricultural Library (20705)
Telephone – 301-436-8221

Berkeley, California. University of California, Bancroft Library, Manuscripts Division (94720)
Telephone – 415-642-3781

Main Library (94720)
Telephone – 415-643-9999

Boulder, Colorado. University of Colorado, Norlin Library (80309)
Telephone – 303-492-8705

Carson City, Nevada. Nevada State Library and Archives, Division of Archives and Records, 101 S. Fall Street, Capitol Complex (89710)
Telephone – 702-885-5210

Nevada State Archives – Same as above

Nevada State Library, State Library Building (89710)
Telephone – 702-885-5130

Carson City, Nevada. Nevada State Museum, Capitol Complex (89710)
Telephone – 702-885-4810

Carson City, Nevada. State of Nevada, Department of Conservation and Natural Resources, Division of Historic Preservation and Archeology, 201 S. Fall Street, Capitol Complex (89710)
Telephone – 702-885-5138

Delta, Utah. Delta Public Library (84624)
Telephone – 801-864-4945

Denver, Colorado. Denver Public Library, 1357 Broadway (80203)
Telephone – 303-571-2000

Elko, Nevada. Elko County Library, 720 Court (89801)
Telephone – 702-738-3066

Elko, Nevada. Northeastern Nevada Museum, P.O. Box 2550 (89801)
Telephone – 702-738-3418

Elko, Nevada. U.S. Forest Service, Humboldt National Forest, Headquarters, Mountain City Highway (89801)
Telephone – 702-738-5171

Ely, Nevada. U.S. Forest Service, Humboldt National Forest, Ely District Ranger Station, 350 East 8th (89301)
Telephone – 702-289-3031

Ely, Nevada. White Pine County Courthouse, Campton Avenue (89301)
Telephone – 702-289-3333

Ely, Nevada. White Pine County Library, Campton Avenue (89301)
Telephone – 702-289-3737

Ely, Nevada. White Pine Public Museum, Inc., 2000 Aultman Street (89301)
Telephone – 702-289-4710

Fillmore, Utah. Fillmore Public Library (84631)
Telephone – 801-743-5314

Golden, Colorado. Colorado School of Mines, Library, 1500 Illinois (80401)
Telephone – 303-273-3000

Harpers Ferry, West Virginia. National Park Service, Harpers Ferry Center, National Park Service Archives (25425)
Telephone – 304-535-6493

Lakewood, Colorado. Bureau of Land Management, Denver Service Center, Library, Denver Federal Center, Building 50, Denver (80225)
Telephone – 303-236-6649

Lakewood, Colorado. U.S. Geological Survey, Library, Denver Federal Center, Building 20, Denver (80225)
Telephone – 303-236-1000

Lakewood, Colorado. National Archives and Records Administration, Denver Branch, Denver Federal Center, Building 48, Denver (80225)
Telephone – 303-236-0818

Lakewood, Colorado. National Park Service, Denver Service Center, 12795 W. Alameda Parkway, P.O. Box 25287, Denver (80225)

Technical Information Center – Telephone – 303-969-2130
Western Team – Telephone – 303-969-2200

Lakewood, Colorado. National Park Service, Rocky Mountain Regional Office, Library, 12795 W. Alameda Parkway, P.O. Box 25287, Denver (80225)
Telephone – 303-969-2715

Las Vegas, Nevada. University of Nevada, Las Vegas, James R. Dickinson Library, Special Collections Department, 4505 Maryland Parkway (89154)
Telephone – 702-739-3252

Logan, Utah. Utah State University, Merrill Library. Department of Special Collections and Archives, College Hill (84321)
Telephone – 801-750-2663

Los Angeles, California. Southwest Museum, Library, P.O. Box 128 (90042)
Telephone – 213-221-2164

Los Angeles, California. University of California, Los Angeles, 405 Hilgard Avenue (90024)

Powell Library – Telephone – 213-325-1201

University Research Library, Department of Special Collections – Telephone – 213-825-4879

Ogden, Utah. U.S. Forest Service, Intermountain Regional Office, Federal Building, 324 25th Street (84401)
Telephone – 801-625-5182

Provo, Utah. Brigham Young University, Harold B. Lee Library, Special Collections – Manuscripts (84602)
Telephone – 801-374-1211

Reno, Nevada. Bureau of Land Management, Nevada State Office, 850 Harvard Way, P.O. Box 12000 (89520)
Telephone – 702-784-5748

Reno, Nevada. Nevada Historical Society, 1650 N. Virginia Street (89503)
Telephone – 702-789-0190

Reno, Nevada. University of Nevada, Reno, Nevada Bureau of Mines and Geology (89557)
Telephone – 702-784-6691

Reno, Nevada. University of Nevada, Reno, University Library (89557)
Telephone – 702-885-5160

Reno, Nevada. University of Nevada System, Desert Research Institute, Social Sciences Center, P.O. Box 60220 (89506)
Telephone – 702-673-7303

Reston, Virginia. U.S. Geological Survey, National Cartographic Information Center, 507 National Center (22092)
Telephone – 703-860-6045

Rockville, Maryland. National Oceanic and Atmospheric Administration, National Ocean Service, Office of Charting and Geodetic Services (20852)
Telephone – 301-443-8356

Sacramento, California. California State Library, California Section, P.O. Box 942837 (94237)
Telephone – 916-445-4149

Salt Lake City, Utah. Church of Jesus Christ of Latter-Day Saints, Historical Department, Church Library-Archives, 50 East North Temple Street (84150)
Telephone – 801-240-2745

Salt Lake City, Utah. Salt Lake City Public Library, 209 East Fifth South (84111)
Telephone – 801-363-5733

Salt Lake City, Utah. State of Utah, Department of Administrative Services, Division of Archives and Records Service, Utah State Archives, State Capitol Archives Building (84114)
Telephone – 801-533-5250

Salt Lake City, Utah. Department of Community and Economic Development, Division of State History, Utah State Historical Society, 300 Rio Grande (84101)
Telephone – 801-533-5755

Salt Lake City, Utah. University of Utah, University Libraries, Marriott Library, Special Collections Department (84112)
Telephone – 801-581-8863

San Bruno, California. National Archives and Records Administration, San Francisco Branch, 1000 Commodore Drive (94066)
Telephone – 415-876-9009

San Francisco, California. National Park Service, Western Regional Office, 450 Golden Gate Avenue, Box 36063 (94102)
Park Historic Preservation – Telephone – 415-556-8376

San Marino, California. Huntington Library, Department of Manuscripts, 1151 Oxford Road (91108)
Telephone – 818-405-2100

Tucson, Arizona. National Park Service, Western Archeological and Conservation Center, P.O. Box 41058 (85717)
Telephone – 602-629-6501

Washington, D.C. U.S. Department of the Interior, C Street between 18th and 19th Streets, Northwest (20240)

Law Library – Telephone – 202-343-4571
Natural Resources Library – Telephone 202-343-5815

Washington, D.C. Library of Congress, 1st Street Between East Capitol Street and Independence Avenue, Southeast (20540)
Telephone – 202-287-5000

Washington, D.C. National Archives and Records Administration, Pennsylvania Avenue at 8th Street, Northwest (20408)
Telephone – 202-655-4000

Washington, D.C. National Park Service; Washington Office

History Division, Room 4209B, 1100 L Street, Northwest (20240) – Mail Stop 418
Telephone – 202-343-8163

Legislation Division, Room 3211, Main Interior Building, C Street Between 18th and 19th Streets, Northwest (20240) – Telephone – 202-343-5883

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Publication services were provided by the graphics staff of the Denver Service Center.

NPS D-24, May 1990