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Cultural and Environmental Change on the Pajarito Plateau

HAL ROTHMAN

When Stephen E. McElroy and Daniel Sawyer surveyed the Ramón Vigil Grant on the Pajarito Plateau for the General Land Office of the Department of the Interior in 1877, they found land that appealed to their instincts. The western portion of the area contained "fine growth of large Pine timber," while piñon and cedar trees covered the area closer to the Rio Grande. The grazing potential of the region also impressed the surveyors, "the grass being of good quality and plentiful," and the two men "saw considerable live stock herds of sheep and cattle grazing in different parts of the tract." In the eyes of these men who routinely assessed the economic potential of land, the area was "valuable for its excellent grazing capacity and its large timber supply." Regardless of their predisposition to encourage settlement, Sawyer and McElroy seemed genuinely impressed with the area they surveyed.¹

Hal Rothman is assistant professor of history in Wichita State University, where he directs the public history program. He has worked as a historian for the National Park Service and for Futurepast, a historical research company based in Spokane, Washington. He is the author of numerous articles on the interaction of humans and the physical environment in the West and of *Preserving Different Pasts: The National Monuments and the Antiquities Act of 1906* (1989).

1. Daniel Sawyer and Stephen C. McElroy, "Survey of the Ramon Vigil Grant," April 2-6, 1877, Bureau of Land Management, Santa Fe, vol. 0101, pp. 584-88.

But by 1913, observers noticed distinct changes in the environment of the region. Famed archaeologist Edgar L. Hewett, a veteran of nearly twenty years on the plateau, reported the "upbuilding of the general mesa level about the walls of ancient buildings [archaeological ruins] to an extent that is not explicable under present conditions." What he saw but did not recognize was the erosion of the thin topsoil that characterized the region. In 1912, William B. Douglass, a government surveyor with much experience in the West, noted that grass on the entire Vigil Grant was "quite scarce." The grazing potential that Sawyer and McElroy had seen in 1877 had disappeared. Douglass also remarked that the stands of Ponderosa Pine reported by earlier surveyors were also gone, replaced "chiefly [by] piñon and juniper, without value for lumber."²

In the thirty-six-year period that followed the Sawyer and McElroy survey, the environment of the Pajarito Plateau underwent change that was radical enough to be visible to the human eye. With the coming of the railroad in 1880, the economic, social, and cultural institutions of American society that transformed the West also became a significant force in a peripheral area. These forces were part of a dynamic process that altered both the physical environment of the region and the lives of Hispanos and Native Americans in the region.

In the vicinity of the Pajarito Plateau, Hispanos bore the brunt of these changes. They lacked the land base, however threatened, of their Native American neighbors. Like indigenous peoples around the globe who faced the impact of European-based industrial culture, the majority of Hispanos found themselves confronted with a set of forces that their culture had not taught them to address.

The environmental change wrought by the application of nineteenth-century American values to fragile land accelerated an ecological process that had begun as soon as Spaniards arrived in New Mexico. American influence telescoped into a few years much more environmental and cultural change than Spanish practices had produced in nearly three hundred years. The technological advantages of the nineteenth century changed long-standing patterns of land use, sharply altering the physical environment of remote areas of northern New Mexico. The cultural systems that preceded Anglo commerce ceased

2. Edgar L. Hewett, Junius Henderson, and Wilfred William Robbins, *The Physiography of the Rio Grande Valley, New Mexico, In Relation to Pueblo Culture* [Bureau of Ethnology Bulletin no. 54] (Washington: Government Printing Office, 1913), 20. See also William B. Douglass, "Resurvey of the Ramon Vigil Grant," August 25, 1913, Bureau of Land Management, Santa Fe, vol. 0039, pp. 63-109.

to function effectively, and American institutions, shaped by the values of an industrial society, filled the economic gap, often to the long-term detriment of the people that preceded Anglo-Americans in the region.

Environmental changes in northern New Mexico were part of a larger process that began the day Christopher Columbus set foot in the New World. Old World plants, animals, humans, and microbes rapidly overwhelmed the parts of the New World that bore the greatest ecological resemblance to the old. Throughout the Americas, fast-spreading European flora and fauna replaced native species, in some cases threatening the survival of native peoples as well as their biotas. In these "Neo-Europes," places like the pampas of Argentina, the Australian grasslands, and the agricultural cornucopia of North America, the "portmanteau biota" of Europeans—everything from the domesticated and soon to become feral animals they brought, to their breathborne and venereal diseases—facilitated wholesale environmental and cultural change.³

In the New World climates most like Europe, the transformation was a relatively simple process. Elsewhere, in the swamps of South Carolina, the tropical rain forests of Central America, or the deserts of New Mexico, European peoples, plants, and animals found conditions much less suited to their health and welfare. In eighteenth-century South Carolina, malaria decimated whites, while their slaves, who possessed a hereditary West African resistance carried in the same gene responsible for sickle-cell anemia, thrived.⁴ The constant moisture and humidity of lowland equatorial regions was also an enemy of Europeans, as was the harsh, arid climate of the "Great American Desert," as nineteenth-century observers termed the Great Plains and Southwest.

Environmental change in the tropics and deserts of the New World was decidedly different from that of the more temperate areas. In these marginal places, the removal of native ground cover did not precipitate replacement of indigenous flora by opportunistic European imports; instead a combination of native plants and imports reshaped the landscape. To "Europeanize" the plants and animals of such places required more than the mere presence of Europeans and their descendants.

3. Alfred W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe 900–1900* (Cambridge: Cambridge University Press, 1986), is the foundation of much of this argument. Crosby's earlier work, *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, Connecticut: Greenwood Press, 1972), addresses these issues in the conquest of the Americas.

4. Peter Wood, *Black Majority: Negroes in Colonial South Carolina from 1670 through the Stono Rebellion* (New York: W.W. Norton and Company, 1974), 70–91.

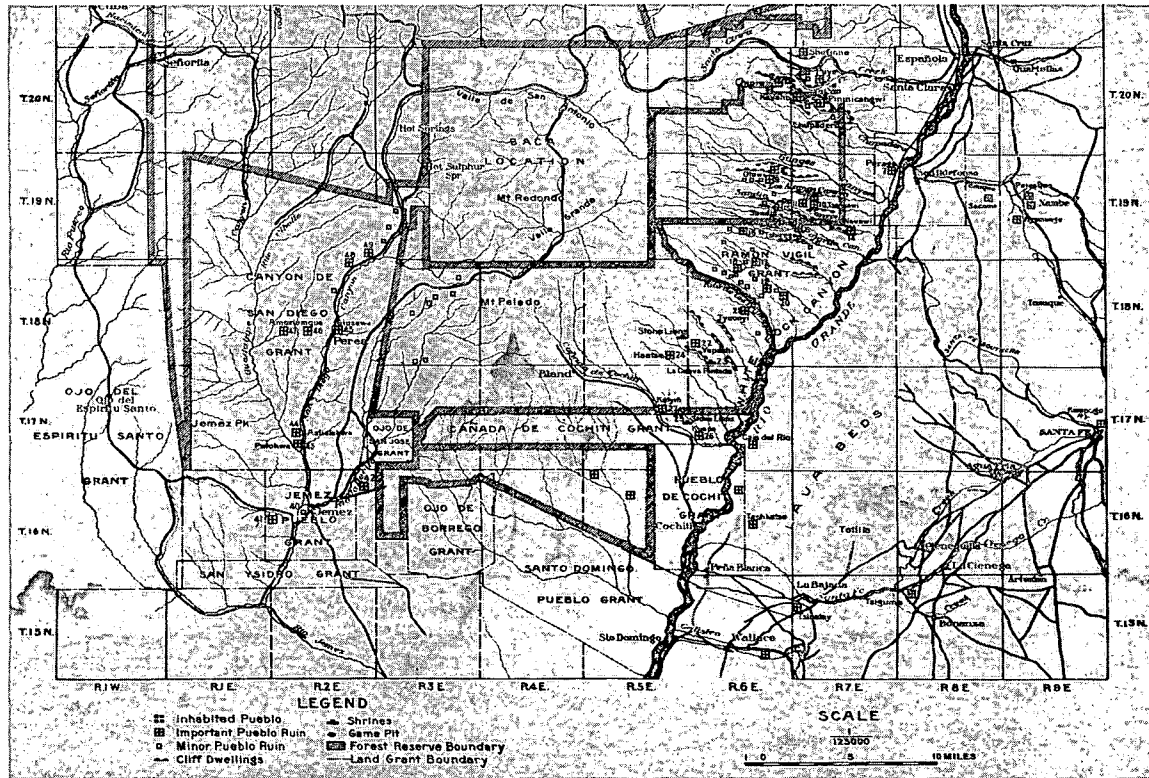
The process of transforming these comparatively inhospitable lands into thriving Neo-European colonies was predicated on economic desirability. Such places usually became important to Europeans and their descendants when the land offered the potential to produce commodities in demand in the European world and when the technology to transport those products to market existed. Without these preconditions, places where climate and vegetation differed greatly from Europe did not attract large numbers of Europeans.

The deserts of New Mexico had relatively little attraction for the Spanish. They did not come in large numbers as they did to the central Mexican plateau. European flora generally fared well when planted in close proximity to water, but away from rivers Spaniards and Pueblos alike had to carefully nurture fruit trees, melons, wheat, and chiles. As a result, New Mexico developed more slowly than places like Peru, where European imports like turnips, mustard, mint, camomile, endive, and spinach grew wildly, defying attempts to keep them out of cultivated fields. In Peru and elsewhere indigenous peoples died from European disease, had their ways of life disrupted by the appearance of rapidly multiplying European livestock, found the native flora decimated and replaced by Old World transplants, and were eventually driven from their homelands, usually within a century of the appearance of the Europeans.

The Pueblo Rebellion highlighted the difference between places like New Mexico and those that better accommodated pastoral and agrarian Europeans. Eighty-two years after Oñate arrived, the Pueblos of New Mexico were sufficiently powerful to drive the Spanish out of New Mexico. In 1680, despite droughts and epidemics, the Pueblos and their cultures remained strong and vibrant, their people healthy, and their disdain for the Spanish evident.⁵

The peripheral location and status of New Mexico and its decidedly un-European climate shielded it from the full brunt of the portmanteau biota of the Spanish and protected its native peoples from the fury of diseases such as smallpox. While European influence in New Mexico was significant, its animals did not reproduce there in the wild fashion that characterized the pampas, Australia, or the eastern United States. Old World plants withered in the dry heat, and European peoples did

5. Elizabeth A. H. John, *Storms Brewed in Other Men's Worlds: The Confrontation of Indians, Spanish, and French in the Southwest, 1540-1795* (College Station: Texas A&M Press, 1975), 87, 90, 92-99; Marc Simmons, *New Mexico: A History* (New York: W.W. Norton and Company, 1977), 66-75; Joe Sando, "The Pueblo Revolt," in Alfonso Ortiz, ed., *The Handbook of North American Indians* (20 vols., Washington, D.C.: Smithsonian Institution, 1979), 9: 94-97.



A U.S. Forest Service archaeological map of 1906, showing inhabited pueblos, Pueblo ruins, and cliff dwellings, also indicates the maze of interconnecting land grants that overlay the Pajarito Plateau.

not replace indigenous ones. Instead, they intermarried, creating a mestizo population, the *casta* system, and a hybrid culture that retained elements of its primary components.

In New Mexico, European cultural influence also spread more slowly than in more neo-European locales, so that by the nineteenth century it remained an isolated outpost. Even the expanding republic to the northeast did not pose a significant threat until after 1835. Prior to that time, Americans in search of land were more likely to head toward the more hospitable environs of central Texas. The few who arrived in New Mexico found the most fertile and irrigable land already occupied. As late as 1840, foreign residents of New Mexico numbered but a few hundred.⁶

The relative paucity of animals in New Mexico and the general lack of economic advantage meant that peripheral places like the Pajarito Plateau, less than thirty miles from Santa Cruz and Santa Fe, experienced a less comprehensive impact from the European portmanteau biota than did the fertile river valleys elsewhere in New Mexico. Until the late nineteenth century, northern New Mexico offered neo-Europeans little but the potential for subsistence. The primary value of the Pajarito Plateau area was as a buffer between New Mexican settlements and the Utes, Navajos, Apaches, and Comanches who threatened them. Only when the Denver and Rio Grande Railroad built a narrow gauge railway that crossed the Rio Grande Valley in the late nineteenth century did the descendants of Europeans—in this case Americans—begin to assess the economic potential of the region.

In 1880, three distinct areas, defined as much by humanity as by topography, comprised the plateau. The southern third, stretching from the Cañada de Cochití Grant to the north rim of Frijoles Canyon, caught the imagination of early travelers to the region. In 1913, Hewett wrote that the southern third "embraces the most stupendous canyons, the wildest scenery, and affords the grandest panoramas to be seen in New Mexico."⁷ Yet the region was rugged, and its angular trails made travel on horseback difficult. Except in Frijoles Canyon, today the primary focus of visitors to the Bandelier National Monument, the canyon bottoms were too narrow for agriculture, and the sharp rise of canyon walls precluded traditional settlement. The sparsely vegetated, table-like mesas offered little cover. Their sandy soils had limited agricultural potential. Only El Rito de los Frijoles, in Frijoles Canyon, provided

6. David J. Weber, *The Mexican Frontier 1821-1846: The American Southwest Under Mexico* (Albuquerque: University of New Mexico Press, 1982), 180-81.

7. Hewett, Henderson, and Robbins, *Physiography of the Rio Grande Valley*, 17.

perennial water. The ruggedness of the region kept it largely uninhabited.

Man-made boundaries created the middle area; the Ramón Vigil Grant. This eighteenth-century Spanish land grant extended from the north rim of Frijoles Canyon to a surveyor's line just south of the Otowi ruins and the present-day town of Los Alamos. Although nineteenth- and twentieth-century accounts reported seeps and a perennial stream in the westernmost segment of Pajarito Canyon, near the center of the grant, and another perennial stream in the aptly-named Water Canyon, there were few other constant sources of water. But the Vigil Grant encouraged human habitation. It was neither as rugged nor as inaccessible as the southern third of the plateau. The topography of the grant did not impede settlers, its mesas did not tower over surrounding canyon bottoms, and the canyons themselves were much wider than those south of Frijoles Canyon. Prehistoric Native Americans found the middle portion of the plateau more hospitable than the land to the south. Ruins on the Vigil Grant far outnumber those south of Frijoles Canyon.

The northern third of the region, beginning at the northern border of the Vigil Grant and extending to another artificial line that bisected the town of Española, had other advantages. Between Frijoles Canyon and Puye Mesa, the higher, more rugged mesas of the southern area gave way to softer, more rolling contours. The land sloped more gently toward the Rio Grande. The canyons became wider, and although there was no more water north of the Vigil Grant than anywhere else, the wider canyons and their seasonal creeks and the lower elevation of the valley floors created more abundant grass cover.⁸

Before the nineteenth century, humanity had a long history upon the Pajarito Plateau. Pre-Columbian pueblos thrived in the region. A number of factors, however, including a general chill caused by a small, planet-wide Ice Age that peaked during the sixteenth century, caused

8. Observers throughout the twentieth century have noted that the largest of the prehistoric pueblos on the Pajarito Plateau were located between Frijoles Canyon and Puye Mesa. The Vigil Grant includes Tshirege, Tsankawi, and many others. See Edgar L. Hewett, *Pajarito Plateau and its Ancient People* (Albuquerque: University of New Mexico Press, 1938). Even archaeological maps of the region follow this track; see the "Archaeological Map of the Proposed Cliff Cities National Park," Proposed National Park file 0-32, Part 2, Records of the National Park Service, Record Group (RG) 79, National Archives, Washington D.C. On Pajarito Plateau archaeology, see Robert P. Powers, "Draft Archeological Research Design for a Sample Inventory Survey of Bandelier National Monument," unpublished paper, November 7, 1986, and Frances Joan Mathien, "The Bandelier Survey Project: Archeological Background," second draft, January 24, 1986, Division of Cultural Research, Southwest Region, National Park Service, Santa Fe.

the people who inhabited the pueblos on the plateau to migrate to lower elevations by 1600.⁹ The larger pueblos were abandoned, and despite occasional attempts at resettlement, by 1800, the lowland pueblos of San Ildefonso and Santa Clara to the northeast and Cochiti to the south had become the centers of Native American life in the region.¹⁰

Few permanent Hispano settlers replaced the Indians, and until the 1880s, the Pajarito Plateau remained largely open land. The lack of perennial streams in the region, and its inhospitable winters confined habitation to the summers. In accordance with Spanish policy throughout New Mexico, Hispanos clustered around the pueblos in the valleys—San Ildefonso, Santa Clara, and Pojoaque—across the Rio Grande and slightly to the north of the abandoned remains of the bustling communities of prehistory. Although it retained vast spiritual importance for Native Americans, the plateau area faded from the central position it held before 1500.

Between 1500 and 1880, Hispano and Indian lifestyles in the Pojoaque and Española valleys that surrounded the Pajarito Plateau changed little. After the Spanish reconquest of New Mexico in 1694, the Hispano communities that grew around the Pueblos practiced a subsistence regime that took advantage of the fertility of the alluvial soils around the Rio Grande and the sparse settlement upon the plateau.

Throughout the nineteenth century, Anglo merchants, mountain men, and settlers filtered into New Mexico. Their trade goods attracted local interest, and the large number of animals they brought began to destroy ground cover around major trading centers like Santa Fe. But only their trade goods made an impact in the Española and Pojoaque valleys: The people there had little to offer merchants. Until 1880, life had a decidedly pre-industrial pace, augmented only by the benefits of items such as window glass. "Defensive and practical needs, rather than aesthetic considerations" governed their lives as well as their architecture.¹¹

But by themselves, the valleys surrounding the Pajarito Plateau did not contain the resources to sustain their inhabitants. The plateau provided an essential boost to the subsistence of its neighbors. Its

9. Roy A. Gallant, *The Ice Ages* (New York: Franklin Watts, 1985), 39–53.

10. Robert H. and Florence C. Lister, *Those Who Came Before* (Tucson: University of Arizona Press), 1–41. See also Richard Woodbury, "Prehistory: Introduction," in Ortiz, ed., *Handbook of North American Indians*, 9: 22–31. For a fictional account of prehistoric life in Frijoles Canyon on the plateau, see Adolph Bandelier, *The Delightmakers* (New York: Harcourt, Brace and Jovanovich, 1971).

11. Weber, *Mexican Frontier*, 220–24.



Sparse vegetation illustrates the fragility of the environment in this turn-of-the-century scene of early field work on the Pajarito Pueblo Ruins. Photo courtesy of Special Collections, Zimmerman Library, University of New Mexico.

timber and grasses broadened the economic capabilities of the people living at lower elevations. During the summer, when most of the water in the valleys dried up and crops and orchards covered every irrigable acre, residents took their animals up to the higher elevations of the plateau. They sought grass for their small herds, and the frequent afternoon rains in the Jemez Mountains assured a more constant supply of surface water. Many cleared patches of land and raised crops. With seventy-five square miles of open land, there was plenty of grass and timber for anyone who needed it.

Hispano families from around the area regularly utilized the plateau. The Pino family from La Cienega, southwest of Santa Fe, brought sheep to Frijoles Canyon. They planted beans and other crops for their own use, trading only the occasional surplus they produced. They allowed stock to graze freely during the days, and at night, quartered them in prehistoric caves. One man, Pacífico C. De Baca, built a cabin on the eastern fringe of Frijoles Canyon, may have even raised crops, most likely beans, and may have spent some winters in the canyon. Observers also noted that prehistoric irrigation ditches from Frijoles Creek had been used during the nineteenth century, presumably for agricultural purposes.¹²

Elsewhere across the plateau, similar cabins sprang up, and some families settled permanently. North of Frijoles Canyon at the eastern base of the Jemez Mountains, Severo Gonzales had a ranch composed of two homestead sections. On nearby Three Mile Mesa, Pedro Gómez

12. Albert J. Abbott to Rodger Abbott, January 12, 1948, Bandelier National Monument Archives, Bandelier National Monument. See also Ida Patton Abbott, "An Account of a Trip to Frijoles Canyon June 20-24, 1907," *Miscellaneous Diaries and Journals*, no. 38, New Mexico State Records and Archives Center, Santa Fe, New Mexico. Albert Abbott visited Frijoles Canyon with two Carlisle Indian School graduates, John and Cyrus Dixon, who apparently worked for the U.S. Forest Service. They gave C. De Baca's name to Albert Abbott, reporting that he had recently left. Mrs. Evelyn C. Frey, the Bandelier concessionaire from 1925 until 1981, also confirmed the presence of Hispano families in Frijoles Canyon during a conversation with Hal Rothman and Bandelier Museum Curator Virginia Robicheau, on October 24, 1985. Mrs. Frey's husband George investigated the remains of the structure during the 1920s, and Mrs. Frey recalled that he told her the house had a basement. Dick Boyd, Sr., intimated that the home belonged to the Pino family in his November 16, 1964, letter to Homer Pickens. He recalled that they came up every summer from La Cienega, near Santa Fe. Richard Boyd, Jr., of Chama, New Mexico, confirmed his father's recollection in an interview with Hal Rothman and Virginia Robicheau on November 14, 1985. He believed that his family purchased their lodge in Frijoles Canyon from the Pinos, although documentary evidence suggests otherwise. The Bandelier National Monument Library has the original tape and transcripts of the conversation. The best guess is that both C. De Baca and the Pinos inhabited the structure at different times, C. De Baca before 1906 and the Pinos between then and about 1919.

y Gonzales and his family settled. In 1894, Benigno Quintana patented a homestead in the vicinity. William Carpenter White settled an adjacent parcel in 1896, and the Quintanas taught Spanish to White's children. Other small homesteads dotted García Canyon, just south of Puye, where people used the cut blocks from nearby ruins for their structures.¹³

The plateau served the needs of a variety of cultures, but geographic constraints often determined patterns of use. San Ildefonso and Santa Clara were closest to the northern third of the plateau, and the Pueblos controlled most of the land bordering the Rio Grande. Native Americans largely utilized the area north and west of Puye Mesa. Hispanos from places like La Cienega, Thornton (Santo Domingo), and the area around Bland came from the south to use the rugged southern portion, while their counterparts from the vicinity of San Ildefonso appear to have gone to the central portion of the plateau with greater regularity, for it contained the Ramón Vigil Grant.

By 1880, the Vigil Grant had a long history of its own. In 1742, in a highly unusual instance, Viceroy don Gaspar Domingo de Mendoza granted the tract to Pedro Sánchez. Sánchez wanted the land because he had difficulty supporting his wife, twelve children, three orphan nephews, and servants. Sánchez may have forged the signature of the viceroy, but during the eighteenth century no one challenged his claim to a marginal tract of land on the periphery of the far northern frontier of New Spain.¹⁴ The land remained in the Sánchez family until 1851, when an heir, Antonio Sánchez, sold the grant to José Ramón Vigil for a yoke of oxen, thirty-six ewes, one ram, and twenty dollars in cash. Vigil claimed his purchase under American law, and his name was attached to the tract. He and his family lived upon the plateau, building a home just east of the point where Los Alamos and Pueblo canyons met.¹⁵

13. Transcripts of Bences Gonzales interview, April 21, 1948, Los Alamos Historical Society, Los Alamos, New Mexico; "Moses Gomez . . . Los Alamos Pioneer," *Los Alamos Monitor*, September 24, 1970. In its Homestead Collections, the Los Alamos Historical Society has maps that show the location and date of patent for each of the homesteads. García Canyon is now part of the Santa Fe National Forest. Visitors to the canyon can still see homestead structures, including a house built from prehistoric cut blocks.

14. For a chronicle of Vigil Grant politics, see Marjorie Bell Chambers, "Technically Sweet Los Alamos" (doctoral dissertation, University of New Mexico, 1974), 30-43.

15. Chambers, "Los Alamos." For references to the location of Vigil's homestead, see Peggy Pond Church, "Trails Over Pajarito" (unpublished manuscript, Los Alamos Historical Society); Peggy Pond Church, *The House at Otowi Bridge* (Albuquerque: University of New Mexico Press, 1960); and map in Ramon Vigil file, L. Bradford Prince Papers, New Mexico State Archives.

Ironically, Vigil's homestead was outside the boundaries of the property he owned, but during his lifetime it never mattered. As in many cases, the boundaries of the grant were drawn informally.

During the first thirty years of the American era, the Vigil Grant was too remote to inspire the kind of controversy that occurred elsewhere in New Mexico. While the Santa Fe Ring schemed to acquire grazing land throughout New Mexico, the people of the Española and Pojoaque valleys continued to pasture animals on the Ramón Vigil Grant.¹⁶

Like many other community land grants, the Vigil Grant functioned as common property. People from the nearby valleys traversed the grant and often grazed their animals upon it. As elsewhere in the Rio Arriba region, a visible sense of interdependence dominated interaction between people in the valley and upon the plateau. An informal social compact dictated that unused land belonged to any member of the extended community that needed it, with kinship by blood or marriage strengthening cultural ties. This informal arrangement had important social and economic consequences for the Hispanos who lived around San Ildefonso, ensuring that the narrow world they inhabited provided for all.¹⁷

Traditional grazing practices offered little respite for the land, but

16. Land grant transfers in the old Mexican north have provoked much scholarship, and the work of the Center for Land Grant Studies has contributed greatly to the discussion. See John R. and Christine M. Van Ness, eds., *Spanish & Mexican Land Grants in New Mexico and Colorado* (Manhattan, Kansas: Sunflower University Press, 1980), G. Emlen Hall, *The Four Leagues of Pecos* (Albuquerque: University of New Mexico Press, 1984), and G. Emlen Hall, "Juan Estevan Pino, 'Se Los Coma': New Mexico Land Speculation in the 1820s," *New Mexico Historical Review*, 57 (January 1982), 27-42. On the tenor of the times, see Victor Westphall, *The Public Domain In New Mexico* (Albuquerque: University of New Mexico Press, 1965), Victor Westphall, *Mercedes Reales: Hispanic Land Grants of the Upper Rio Grande Region* (Albuquerque: University of New Mexico Press, 1983), and Victor Westphall, *Thomas Benton Catron and His Era* (Tucson: University of Arizona Press, 1973). Thomas Benton Catron and Stephen B. Dorsey were leaders in the "Santa Fe Ring," the members of which acquired large land grants in northern New Mexico for their cattle operations. Leonard Pitt, *The Decline of the Californios: A Social History of Spanish-Speaking Californians 1846-1900* (Berkeley: University of California Press, 1971), 83-129, 148-191, shows the process by which Spanish-speaking Californians were divested of their lands. In New Mexico, Hispanos were not as outnumbered by Anglos as in California, and they resisted in a number of ways. See David J. Weber, *Foreigners in Their Native Land: Historical Roots of the Mexican American* (Albuquerque: University of New Mexico Press, 1973), 208; see also Robert Rosenbaum, *Mexicano Resistance in the Southwest: The Sacred Right of Self-Preservation* (Austin: University of Texas Press, 1981), 99-124.

17. Paul Kutsche, ed., *The Survival of Spanish-American Villages* (Colorado Springs: Colorado College, 1979), 3-55.

on the plateau, the relatively small number of cattle and sheep and the comparatively large land base mitigated the impact of hooves and mouths. Herdsman often took their stock up to the plateau to search for fresh grazing even before grasses at lower elevations began to sprout. As a consequence, in the most heavily grazed areas, short grasses like blue and side-oats grama, false-buffalo, needle-and-thread, and galleta, and forage plants and shrubs rarely had the opportunity to seed and reproduce. By mid-summer, the animals were foraging off stems instead of the flowers of plants. But the pockets of damage this created had little impact upon the plateau as a whole. With an old-growth timber cover, ranging from piñon at lower elevations to ponderosa pine and Douglas fir higher up, and with wildfires that regularly replenished soil nutrients, herders had little trouble finding new and better pasture after they had exhausted a small area.

These grazing practices, however, posed problems for the future. In situations of more intensive use, the grazing lands of *pobladores* and Indians fared less well. Overgrazing in the Rio Puerco basin, from Cuba on the west side of the Jemez Mountains to the Rio Grande, had eroded fragile alluvial soils so badly that between 1880 and 1951 more than ten thousand acres of previously irrigable land near the river were lost to cultivation. With ground cover destroyed, rampaging floods became common. In other similar areas, the tiny sharp hooves of sheep left trails that opened the way for opportunistic plants and decimated large areas of forage land.¹⁸

Prior to the 1880s, the Pajarito Plateau had escaped this mass destruction. There was no cultural prohibition nor understanding of the land's fragile character to prevent herdsman from overgrazing the Pajarito Plateau, but they lacked the quantity of stock to make more than a short-term impact on a limited area of such a marginal land. But on the Pajarito Plateau, these patterns of use sowed the seeds of an ominous ecological future.

Anglo industry served as the catalyst that ignited the process of change. In 1879, the Denver and Rio Grande Railroad began to build narrow gauge tracks through the Rio Grande Valley, changing perceptions of the value of land west of the river. The Chili Line eventually ran from Santa Fe to Antonito, Colorado, creating new communities in its wake. In 1880, just to the north of Santa Clara Pueblo, where the line originally ended, a railroad town called Española sprang up "in the midst of hoary old Spanish towns and Indian Pueblos." As late as

18. William deBuys, *Enchantment and Exploitation: The Life and Hard Times of a New Mexican Mountain Range* (Albuquerque: University of New Mexico Press, 1985), 217.

1885, the town was "a baby city . . . [a] nondescript collection of canvas tents and board shanties on a flat beside the river."¹⁹ The railroad offered a link to the outside world that made the development of previously remote land worthy of consideration.

Anglos perceived the value of land like the Pajarito Plateau in very different terms than did prior inhabitants of the area. They saw what Sawyer and McElroy had seen: commercial grazing and timber potential. The added allure of the proximity of the railroad also figured in the equation, and Anglos offered what seemed exorbitant prices for land along the proposed route. The Rio Grande Valley boomed, and men like Frank Bond, who opened a general store in Española in 1883, envisioned fortunes in the making.

But these new values signaled change in the region, and Hispanos bore its brunt. Unlike their Native American neighbors, they had difficulty proving their claim to lands ceded them by the Spanish and Mexican administrations. While all the Pueblos except Zuñi and Laguna were approved before 1860, Hispanos met with comparatively little success when they sought to have the American government recognize their claims. The question of community ownership, which American law did not recognize, posed significant problems, as did the use of land to which no individual held title. Hispano land received few of the protections extended to Native Americans.²⁰

The coming of the railroad also changed the value of land in northern New Mexico. In 1851, when Ramón Vigil acquired his land, it had subsistence value, but by 1880 it had considerable cash value. Vigil, already more than seventy years old, was prepared to sell. When Father Thomas Aquinas Hayes, a priest serving under the Archbishop of Santa Fe, Jean Baptiste Lamy, offered Vigil \$4,000 for the grant, Vigil accepted.

Father Hayes blossomed into quite a successful land speculator. Lamy had sent Hayes to serve at Santa Clara Pueblo, and his position there presumably facilitated the purchase of the grant. Father Hayes knew he owned a valuable commodity. In 1884, he sold the tract to Winfield R. Smith, a wealthy Milwaukee attorney, and Edward P. Sheldon, a Cleveland industrialist, for \$100,000—an astronomical cost of more than \$3 per acre.²¹

19. Birge Harrison, "Española and Its Environs," *Harper's Magazine*, 70 (May, 1885), 53-54, reprinted by Las Trampas Press, Española, New Mexico, 1966, pp. 1-2. After passenger trains entered New Mexico in the 1880s, railroad companies sought to promote the Southwest. Harrison's article was part of the process.

20. Victor Westphall, *Mercedes Reales*, 110-21, 193-216.

21. Ramon Vigil file, Prince Papers. See also Church, *Otowi Bridge*, 6-8; and Chambers, *Los Alamos*, 35. File H542C, Ramon Vigil Grant, Los Alamos Historical Society,



Students of the Los Alamos Ranch School, which grew out of Ashley Pond's efforts to establish a vacation club for the wealthy, pause on horseback in May 1919 during an afternoon ride near old Buckman sawmill. Activities such as this had significant impact on the Pajarito environment. Photo courtesy of the Los Alamos Historical Museum.

The sale of the Ramón Vigil Grant was part of a larger pattern. To the east and south of the Sangre de Cristos similar events transpired. At Pecos Pueblo, Hispanos acquired parts of the original Pueblo league from Indians as early as the 1820s. Although the Pecos Valley contained a number of thriving Hispano communities by 1880, at least one title to the entire Pueblo league was bandied about New York City in the hands of Anglo speculators. The group of speculators, none of whom had ever seen Pecos, apparently offered the title as collateral in a number of different situations. At Las Trampas, farther to the north, Anglo speculators alienated the *ejido* (the common area) of a Spanish land grant in 1902, turning the timber and grazing lands of El Valle and Las Trampas into a private pasture for their sheep.²²

These men saw land not as a place to make a home, but as a commodity, and their values came to dominate territorial New Mexico. They utilized the railroad and a growing national market to make their fortune. Many of them, including some Hispanos, became powerful in territorial politics. Smaller landowners and their communities had difficulty combating the potent acquisitive instincts of men like Thomas B. Catron, who at one point owned more than one million acres in northern New Mexico.

Winfield Smith and George Fletcher, who bought out Sheldon in 1885, shared the dominant values and cultural assumptions of late-nineteenth-century industrial America—growth, progress, development, and profit. They perceived the tract in a different fashion than did other residents of the area. Like the majority of their generation, they believed in commerce as a civilizing factor. Nor could they afford to let the Vigil Grant lie fallow; they had too much money invested in the land. As absentee landlords, they sought tenants who could make enough money off the land to pay both taxes and a stipend to its owners.

In 1885, after much of the West Texas rangeland became desert as a result of abusive land practices and the Texas legislature passed ordinances limiting grazing, W. C. Bishop, the famed Texas cattleman, joined the parade of Texans who sought rangeland in New Mexico and leased the plateau. He headed a large operation handling over three thousand head of cattle. Hispano residents of the region later recalled never having seen so many animals in their lives.²³

contains copies of documents from the Hayes transactions. When Thomas Aquinas Hayes purchased the Vigil Grant, Vigil did not have a patent. It was finally granted in 1898.

22. Hall, *Four Leagues of Pecos*, 171–97; deBuys, *Enchantment and Exploitation*, 171–92.

23. J. A. Stout, "Cattlemen, Conservationists, and the Taylor Grazing Act," *New Mexico Historical Review*, 45 (October 1970), 311–32.

Like many other southwestern locales, the Pajarito Plateau was an ecological trap. Its deep grama grasses, ponderosa pine trees, and the abundance of bear, puma, wild turkeys, and other game at higher elevations promised much to the nineteenth-century eye. The land seemed cornucopian, and to a degree, it was.²⁴ In reality, however, places like the Pajarito Plateau gave much less than they promised. Its fertility was an illusion created by its high altitude. The region received an average of ten to fourteen inches of rain per year, far short of the minimum that agriculture without irrigation required. Its bunch grass was rooted in a thin layer of topsoil, formed over thousands of years. Once the grasses disappeared, leaving the land defenseless and vulnerable to erosion, they would not soon return. Even sporadic grazing could tax its resources.

The appearance of Bishop and his cattle affected the communal nature of the use of land on the Pajarito Plateau. The land simply could not provide for subsistence and commercial economies simultaneously, and the lessees and their neighbors were at odds. Hispanos and Indians in the region owned too few animals to fill the plateau. The Texans, however, brought so many cows that they monopolized every strand of grass on the Vigil Grant, and in time-honored western tradition pastured animals beyond its vague boundaries. Ironically, Pueblo Indians had previously accused their Hispano neighbors of the same thing. Some Hispanos later reported that the Texans forbade them to graze their animals on the plateau. Others withdrew their stock because they feared violence.²⁵ Those who had traditionally used the Pajarito Plateau as an ejido were pushed off large tracts of pasture they had always used.

Before the conflict could escalate the deadly winter of 1886–1887 destroyed Bishop's cattle enterprise, and the plateau returned to its historic state. Although Bishop tried to revive his herd in the spring and summer of 1887, he soon packed up the remainder of his enterprise and returned to Texas. After the cattlemen left, herders from the valleys again brought their animals to the Vigil Grant. To the isolated residents of the Pojoaque and Española valleys, the short reign of the Texans seemed but an aberration.

Bishop and his cattle had a complex and deleterious impact upon the Vigil Grant. Modern calculations indicate that the carrying capacity of the 32,000-acre Vigil Grant would have been about three hundred

24. Crosby, *Ecological Imperialism*, 279.

25. Transcripts of depositions for *Sanchez v. Fletcher* taken in 1902–1904, Prince Papers.

head of cattle. With ten times that number Bishop initiated a chain reaction. The overstocking reduced the vigor of forage plants, inhibited reproduction, allowed opportunistic plants from lower elevations to move in, and probably eliminated more favored species of forage. As animals traveled progressively farther for water, their hooves created extensive trails, leading to soil movement, erosion, and ultimately, the mortality of plant species, particularly the edible wild plants that congregated around water sources. In turn, the build-up of dead vegetable matter diminished, destroying patterns of soil and plant regeneration.

The presence of the cattle also interfered with the natural regeneration of the range. Trampling of grasses by animal hooves and cropping of immature plants limited the amount of fuel for wildfires. Changes in natural patterns of wildfire prevented shrubs and trees from spreading into grassy areas. This process caused fewer nutrients to be available upon the range, and encouraged competition from plant species of hotter, drier zones. The result was general desiccation of the soil, and ultimately, a diminished economic potential for the land.²⁶

In an arid marginal region, the impact of comprehensive overgrazing persists for generations. Ecological climax communities in arid areas like the Pajarito Plateau take hundreds of years to mature. Because its soils were fragile, thin, and highly erodible, the removal of first-growth cover by overstocking precluded the slow process of natural recovery. In short, Bishop and his cattle sprang the trap. Mass grazing permanently decreased the quality of range upon the Vigil Grant, and initiated a process that led to other commercial uses of land not well-suited for the demands of the national market.

The appearance of the Texans also became a precursor of the spread of Anglo material culture to peripheral areas like the Rio Arriba region of New Mexico. The tenets of industrialism and the drive for cash profits entered the world of subsistence economics. Anglo practices of

26. The carrying capacity of the Vigil Grant is estimated in Teralene S. Foxx and Gail D. Tierney, "Status of the Flora of the Los Alamos National Environmental Research Park: A Historical Perspective" (Los Alamos: Los Alamos National Laboratory, 1984), 2-4. See also Aldo Leopold, "Grass, Brush, Timber, and Fire in Southern Arizona," *Journal of Forestry*, 22 (October 1924); David R. Harris, "Recent Plant Invasions in the Southwest of the United States," in Thomas R. Detwyler, ed., *Man's Impact on the Environment* (New York: McGraw-Hill, 1971); R. R. Humphrey, "The Desert Grassland," *Botanical Review*, 24 (April 1958), 198-217; Stephen J. Pyne, *Fire in America* (Princeton: Princeton University Press, 1982); John York and William Dick-Peddie, "Vegetational Changes in Southern New Mexico During the Past Hundred Years" in William G. McGinnies and Bram J. Goldman, eds., *Arid Lands in Perspective* (Tucson: University of Arizona Press, 1969); and Frederick R. Gehlbach, *Mountain Islands and Desert Seas: A Natural History of the U.S.-Mexico Borderlands* (College Station: Texas A&M Press, 1981).

land use signaled the end of traditional life on the plateau and in the surrounding valleys. Even though the Vigil Grant briefly reacquired its traditional, ejido-like status, its value to seasonal users decreased. As its soils became more desiccated and opportunistic desert plants and shrubs like snakeweed replaced native grasses at higher elevations, the plateau ceased to be a dependable source of economic sustenance.

After Bishop left, Smith and Fletcher embarked on new schemes to make their investment pay for itself. In 1898, the partners leased the timber rights of the Vigil Grant to H. S. "Harry" Buckman, a lumberman from Oregon living about fifty miles north of Española in Tres Piedras. The "Chili Line" had reached Santa Fe in 1886, and Buckman built a small town, which he named after himself, about nine miles south of Española, at the spot where the railroad from Santa Fe reached the east bank of the Rio Grande in White Rock Canyon. He began a full-scale timber cutting operation on the plateau. Soon there were lumber camps in Water Canyon, about five miles from the ruins at El Rito de los Frijoles. A new kind of commercial culture began to take root at the base of the Pajarito Plateau.

Buckman made his living by cutting timber on contract from Spanish land grants that fell into Anglo hands. When he leased the Vigil Grant, he had just finished cutting the Petaca Grant, near Tierra Amarilla. As his work on the Petaca Grant showed, Buckman had little regard for the land, its prior inhabitants, or the absentee landlords with whom he made his bargains. An opportunist, he tried to make a fortune from each and every deal, cutting timber indiscriminately, but nearly always scrambled to break even.²⁷

Buckman's labor-intensive lumber camps introduced timber cutting for profit to the Pajarito Plateau. His tie-gangs roamed the plateau in search of timber. The saw mills in the canyons processed the wood, which William C. White, the homesteader, and others drove in wagons along the road that Buckman built from his sawmills in Water Canyon to Buckman. There other workers loaded the lumber upon the narrow gauge railroad, which carried it to the world beyond the relative isolation of northern New Mexico.

Buckman's timber enterprise destroyed what remained of the native ecosystem on the Vigil Grant. Bishop's cattle had devastated its native grasses and now Buckman cut much of the old growth timber. The destruction of the grass cover and the spread of low quality forage

27. Chambers, "Los Alamos," 30-34; H. S. Buckman to Prince, April 14 and September 3, 1900, *Sanchez v. Fletcher* testimony, Prince Papers. See also John A. Gjevre, *The Chili Line: The Narrow Rail Trail to Santa Fe* (Española: Rio Grande Sun Press, 1969).



Grazing changed the Pajarito environment so substantially between the 1880s and early 1900s that changes were visible to the naked eye. Here, cattle of the Los Alamos Ranch School are corralled at a cow camp high in the Jemez Mountains in summer 1919. Photo courtesy of the Los Alamos Historical Museum.

plants further affected the livelihood of the people of the Española and Pojoaque valleys. They had to take their animals farther to find good pasture, competing among themselves for increasingly poor range.

Even nature seemed to conspire against the long term survival of the people of the region. Meteorological records indicate that the years between 1905 and 1920 were the wettest on record. Although the heavy rains meant years of good crops they also contributed to rangeland damage. With the soil of the plateau already loose and uncovered, the pounding rains and the attendant humidity of the first two decades of the twentieth century carried away much of the remaining topsoil. The decreasing quality of the Vigil Grant and changing patterns of land use in the region ignited a complicated process of economic, social, political, and environmental change.²⁸

This change was incremental. Each stage pushed the people of the area closer toward dependency on outside markets. Native American and Hispano populations found themselves with less of the plateau at their disposal. The Vigil Grant, its productivity demolished by Bishop and Buckman, was no longer available. The density of Hispano and Native American stock outside the Vigil Grant increased, and more animals competed for less grazing land. Anglo overgrazing extended the impact of earlier limited overgrazing by Hispanos and Native Americans; cattle and sheep trails were no longer centralized around water sources. Larger herds also drove game higher into the Jemez Mountains, and the black bear, wild turkeys, and pumas that characterized the pre-1800 plateau became more scarce. The advantages of the plateau as a subsistence environment quickly disappeared, and the people that depended on it had to find new sources of sustenance.

Prior to the lumber camps and tie-gangs, few Hispanos or Native Americans worked for anyone else. Instead, they grew foodstuffs, tended animals, and traded for items that they could not produce themselves.²⁹ Cash money was scarce, and labor was a commodity to be bartered, not sold. Buckman's crews received cash for their labor, and the influx of money made the goods in the stores by the railroad in Española

28. On the process of making subsistence cultures dependent, and on how the twentieth-century Navajo experience parallels that of Hispanos in northern New Mexico, see Richard L. White, *Roots of Dependency: Subsistence, Environment, and Social Change among the Choctaws, Pawnees, and Navajos* (Lincoln: University of Nebraska Press, 1983), 212–314. The same factors came to bear on both groups, and differences in reactions provides insight. On changes in rainfall in northern New Mexico between 1905 and 1920, see deBuys, *Enchantment and Exploitation*, 215–16.

29. deBuys, *Enchantment and Exploitation*, 196; Frank Bond, "Memoirs of Forty Years in New Mexico," *New Mexico Historical Review*, 21 (October 1946), 342–43.

more available to the people of the region. With motives born of desire and necessity, Hispanos and Native Americans began to participate in the cash economy. As their base of existence became less fruitful, many Hispanos entered the market to trade for foodstuffs. Many also sought to acquire the tools and implements of industrial America. These were expensive, and often required credit—the final step in becoming a part of the cash economy. An embryonic imitation of the turn-of-the-century American lifestyle entered the Pajarito Plateau.³⁰

The need for credit and its availability dramatically changed both farming and grazing in the Pajarito Plateau area. Cash crop farming became prevalent, and new patterns of land use emerged. No longer did everyone in a Hispano family work on the homestead. The cooperative ethos that characterized life in the region changed as material goods made people rely less upon each other and more on the world at the other end of the railroad tracks. Young Hispanos left home to work for wages to supplement the agricultural and pastoral activities of their families. This led to greater exposure to the Anglo world and additional inroads by its culture.

The change in crop raising practices on the Pajarito Plateau revealed the emergence of cash crop culture. Prior to 1880, Hispano agriculturalists primarily raised crops for their own consumption. If a surplus existed, they traded for necessities. But by the early twentieth century this emphasis had changed. The experience of Victor and Luisa Romero and their six children shows how cash crops assumed a new prominence in their agricultural activities. The Romeros were typical of homesteaders on the Pajarito Plateau. Victor's father, David, had begun to homestead the plateau early in the century, and the younger couple followed his lead. In 1913, they staked a claim to an adjacent parcel. Each spring, they left San Ildefonso for the plateau in their horse-drawn wagon laden with supplies. Of their fifteen acres, thirteen were tillable, and these the Romeros filled with beans and corn. Until the end of the first world war, beans were the primary cash crop commodity. In 1913, the Romeros harvested twelve hundred pounds of beans; in 1914, three hundred pounds of beans and four fanegas (roughly an English bushel) of corn; and in 1915, twenty-one hundred pounds of beans and eighteen hundred pounds of corn.³¹

Cash crop farming did not cause homesteaders to abandon subsistence ways entirely, but these activities became less dominant than

30. Unpublished manuscript by George White, the son of William C. White, 1958, in possession of Jim and Linda Goforth, Los Alamos.

31. White, *Roots of Dependency*, xiii-xix, 315-22.

they previously had been. The Romeros planted peach, apricot, and cherry trees, watermelons, and a variety of vegetables, including squashes, for their own use. They also harvested native wild plants like quelites (a wild spinach), verdolaga (pigweed), osha (wild celery), and amole, from which the homesteaders made soap. Ernest and Ernestina Romero, who both grew up on the plateau, fondly recalled wild strawberries as being abundant on the canyon walls.³² Nevertheless, the amount of tillable land in marketable crops revealed the importance of the cash economy.

Despite the native abundance, the lot of homesteaders resembled that of sharecroppers in the South. They too took seed and implements on credit, paying interest to merchants in the valleys. As long as their yield and the market prices remained high, their situation was stable. But the land became less productive as a result of constant use and, by 1915, homesteaders began to leave the plateau. Bean and other crop prices plummeted in the aftermath of World War I, and the economic viability of homesteading measurably decreased. The people who lived on the Pajarito Plateau remained poor, but their situation worsened. They had experienced what Anglo material culture had to offer, changing their expectations and accordingly becoming further enmeshed in the Anglo market. They also owed interest and principal for commodities that they took in the better years.

The advent of cash crop farming was ecologically dangerous in a marginal area like the Pajarito Plateau. Modern agricultural science was in its infancy, and few people understood the need for techniques such as crop rotation. As did people everywhere else, the homesteaders on the Pajarito Plateau planted the same crops in the same places year after year. Within a decade, productivity usually declined, damaging the land, further impoverishing its people, and increasing their dependence on the cash economy.

The decline in the quality of forage and the centralization of land in a few hands also changed traditional patterns of sheep and cattle grazing in the region. Individual pobladores still had their small herds of stock, but the plateau ceased to be open land. Bishop had forbidden Hispanos to use the area in the 1880s, and Buckman had appointed James Loomis, a Cherokee Indian who had worked for him on the Petaca Grant, as his field chief in 1902. Loomis followed the lead of the Texas cattlemen, posting signs in Spanish and English that ordered people to keep their animals off the Vigil Grant. In 1905, Theodore

32. Gail D. Tierney and Teralene S. Foxx, "The Botanical History of the Romero Site," unpublished partial draft in possession of the author.

Roosevelt extended the boundaries of the Santa Clara reservation westward to include Puye and Santa Clara Canyon.³³ Barriers sprang up in a formerly open world even as the land gave less and less.

The establishment of the U.S. Forest Service in 1905 brought a different kind of institutional influence and its barriers to the plateau. The idea of conservation, using land wisely in scientific fashion, became important to the Anglos who administered the new Jemez Forest Reserve, established October 12, 1905, which included much of the Pajarito Plateau. Typical of the middle-class reformers of the Progressive era, the foresters desired social order. In the efficient management of natural resources they saw both fairness and the preservation of an economic legacy for future generations. They were schooled in the techniques of the burgeoning discipline of modern natural science and on the Pajarito Plateau, foresters reacted to the already depleted range and damaged watershed with a system of permits. Hispanos had to seek out uniformed authorities for permission to use land they had long regarded as their own, and the gulf between Hispanos and the American institutions that influenced New Mexico widened.³⁴

Hispanos had to fend for themselves. American institutions ignored their plight, and Hispanos lacked the land base of their Native American neighbors. The Pueblos had the best agricultural land along the Rio Grande, and when their subsistence economy was threatened, they sought more. Theodore Roosevelt's extension of the Santa Clara reservation in 1905 was but one example; the enlargement was enacted despite the opposition of General Land Office Special Agent Stephen J. Holsinger, sent to evaluate that and other questions the year before. Land extensions such as this helped the Pueblos maintain more facets of their traditional lifestyle longer than could Hispanos. After 1913, when the U.S. Supreme Court protected the Pueblos by forbidding further alienation of their land in *United States v. Sandoval*, the position of Native Americans became even stronger. In contrast, Hispanos had no comparable guarantees. American courts acted slowly on their claims, and Anglo adjudication of the ejido issue created significant controversy. As the informal and formal compacts of the past ceased to hold

33. U.S. President, Executive Order 80218, July 29, 1905, included Puye in the Santa Clara Reservation. In an uncataloged collection, the Los Alamos Historical Society possesses one of Buckman's signs prohibiting grazing. It bears James Loomis's name.

34. Harold K. Steen, *The U.S. Forest Service: A History* (Seattle: University of Washington Press, 1976), 3-103. On the U.S. Forest Service's early years in the Southwest, see Edwin A. Tucker and George Fitzpatrick, *Men Who Matched the Mountains: The Forest Service in the Southwest* (Albuquerque: U.S. Department of Agriculture, Forest Service, Southwest Region, 1972), 1-161, 200-207.

and land available to them decreased, they faced dependency. The Pueblos also suffered from the coming of the cash economy, but they became a part of the system much later than did the Hispanos.³⁵

The policies of the Forest Service had both environmental and cultural effects. Foresters sought to protect grazing lands, but their policy of fire suppression ended the natural process of regeneration of rangelands. Natural fire had been its primary catalyst. The depleted range remained unproductive, and the foresters placed strict limits on the number of stock that could graze public range. As a result, the need for land forced many Hispanos to run sheep on shares for commercial enterprises.

One man dominated the running of sheep on shares on the Pajarito Plateau. Frank Bond, the Española merchant, had left Canada in 1879 to join his brother, George, who owned a wool processing plant at Trinidad, Colorado. The brothers later sold this plant, and in 1883 followed the Chili Line to Española, where they started a mercantile business and brokered lambs and wool. The mercantile store carried the most up-to-date farm implements and goods, and Bond traded shrewdly with Anglo, Hispano, and Native American alike.³⁶

Under Frank Bond's leadership the company prospered. He profited from the long standing disputes over community land grants, purchasing the title to the ejido of a number of Spanish land grants after American courts ruled that heirs could petition for their portion of these common areas. After acquiring this section of the Las Trampas Grant, he referred to the Hispanos whose families had settled the grant in the 1740s as "squatters." Observers of the New Mexico scene did not rate his altruistic sentiments highly.³⁷ He drove mercantile competitors out of business by undercutting them, and expanded his stores to every important community in New Mexico.

Raising sheep also became part of Bond's empire. Before 1900 he had started financing other people's shepherding under his version of a Spanish system of running sheep on shares called *partido*. Bond

35. Marc Simmons, "History of Pueblo-Spanish Relations to 1821," in Ortiz, *Handbook of North American Indians*, 9: 178-93; Sandra A. Edelman, "San Ildefonso Pueblo," in *ibid.*, 312; Stephen J. Holsinger, "Report on the Proposed Pajarito National Park, December 1904," Bandelier National Monument.

36. Interview with Richard Boyd, Jr., November 14, 1985, Bandelier National Monument Library. See also deBuys, *Enchantment and Exploitation*, 175-192; and Frank H. Grubbs, "Frank Bond: Gentleman Shepherder of New Mexico 1883-1915," *New Mexico Historical Review*, 35 (July 1960), 169-99, and *ibid.*, 35 (October 1960), 293-308.

37. Grubbs, "Frank Bond"; deBuys, *Enchantment and Exploitation*, 190; Herbert W. Gleason Report to the Secretary of the Interior and the National Park Service, 1919, Bandelier National Monument.

acquired so much public and private grazing land that small herders, who could not find enough pasture for their stock, had to sign on with him. Bond's system tended to impoverish these small herdsmen. *Partidarios* took his sheep along with their own, and Bond made the herders fully responsible for the animals in their care. Their own stock served as collateral. Bond collected a fee for range use from the *partidarios*, who also had to outfit themselves from his store, where a flat 10 percent interest rate was charged. With expenses mounting, most *partidarios* were lucky to keep their own sheep at the end of a contract period. As Bond's empire grew he became the most influential man in the Española Valley.³⁸

Bond's operations bound *partidarios* in a form of peonage. When he leased Forest Service land for *partidarios* to run sheep, he made sure the transaction was recorded in his name. After three years of use, forest grazing rights became permanent, and placing the lease in his name allowed him even greater control over the herdsmen who watched his ever-growing flock. Soon Bond controlled the best range on federal land, and many small stockholders had to become *partidarios* in order to get access to these good grazing lands.

The advent of commercial sheep grazing compounded the earlier effects of cattle grazing and timber-cutting, damaging the fragile landscapes of the Pajarito Plateau. Sheep climbed steep slopes that more clumsy cattle could not negotiate, and their sharp hooves left tiny, zig-zagged trails along the sides of mesas. They sought different plants than did cattle, finding the bunchgrasses of the canyons relatively unpalatable compared to the short grasses of the mountains. Like cattle, however, sheep favored new forage, and "once they get a taste of new grass sprouts," one homesteader with visions of wealth wrote in 1913, "they won't eat anything else, [even the] tons of good hay all around."³⁹ Commercial sheep-grazing completed the transformation of the ponderosa pine ecosystem into one filled by juniper and piñon woodland plants.

Only the volume of use differentiated Anglos from their predecessors. While traditional pastoralists had a slow and steady impact on land and water, Anglo commercial interests telescoped the impact of hundreds of years into a handful. Early in the twentieth century, few people understood the concept of conservation. Anglo cattlemen and timbermen and Hispano and Native American pastoralists alike

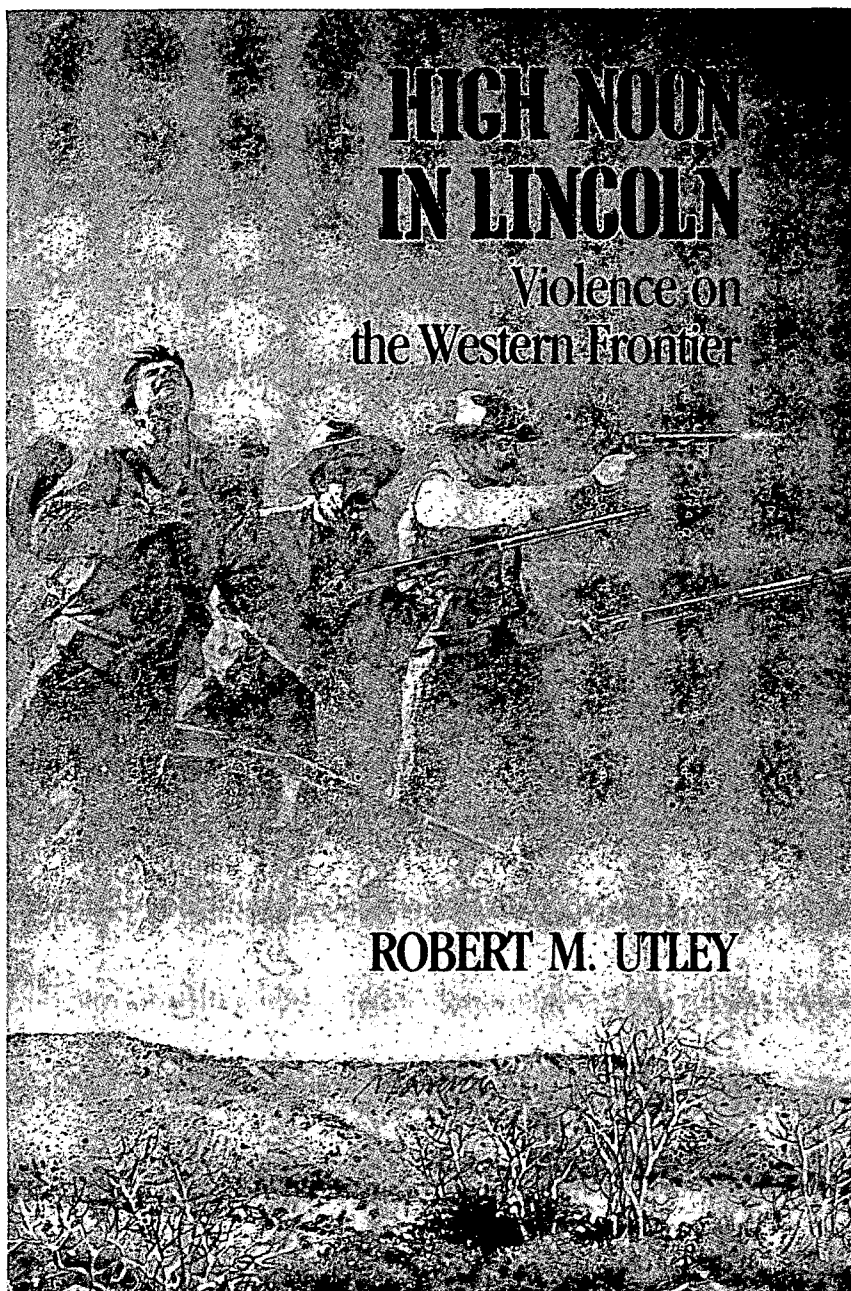
38. deBuys, *Enchantment and Exploitation*, 221.

39. Harold H. Brook letters, file H542L, Los Alamos Historical Society.

in northern New Mexico were not among those who did. In the nineteenth century, as in the vast span of human history, people used land to the best of their ability. Anglo culture had the capability to make a discernible and irrevocable difference, and on the Pajarito Plateau, as elsewhere in New Mexico and the West, it did.

By 1910, environmental change fed by the assumptions of industrial culture played a major role in the interactive process that brought the cash economy to the fore on the Pajarito Plateau. The enterprises of Bishop, Buckman, and Bond encroached upon traditional life in the region, introducing a different set of cultural values and affecting the livelihood of Hispanic residents of the area. The destruction of its grass and timber, the pressure of larger herds, the dependence on the cash economy, and the appearance of American institutions set off a chain reaction that inalterably changed the Pajarito Plateau. Unprotected by the federal government, Hispanos faced radical challenges to their traditional ways of living. Technology and the growing national market had facilitated the commercial development of marginal land, and for those that had subsisted upon that land, survival required cultural adaptation. The dependence of Hispanos may have begun with the American conquest of New Mexico, but the destruction of the subsistence base accelerated the process of forced adaptation. They were caught in a cycle that ended in their dependence upon Anglo institutions.

When Edgar L. Hewett expressed his astonishment at the visible effects of windblown erosion in 1913, he had happened across a readable landscape of cultural and environmental change. The land itself testified to the changes the Pajarito Plateau and its people had undergone. Ironically, a man as sensitive to cultural change as Hewett did not equate the loose soil he saw with the declining condition of the people who surrounded him. He could not interpret the signals given him by the natural world. But in this, Hewett was not alone. At the time, neither could anyone else.



HIGH NOON IN LINCOLN

Violence on
the Western Frontier

ROBERT M. UTLEY

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