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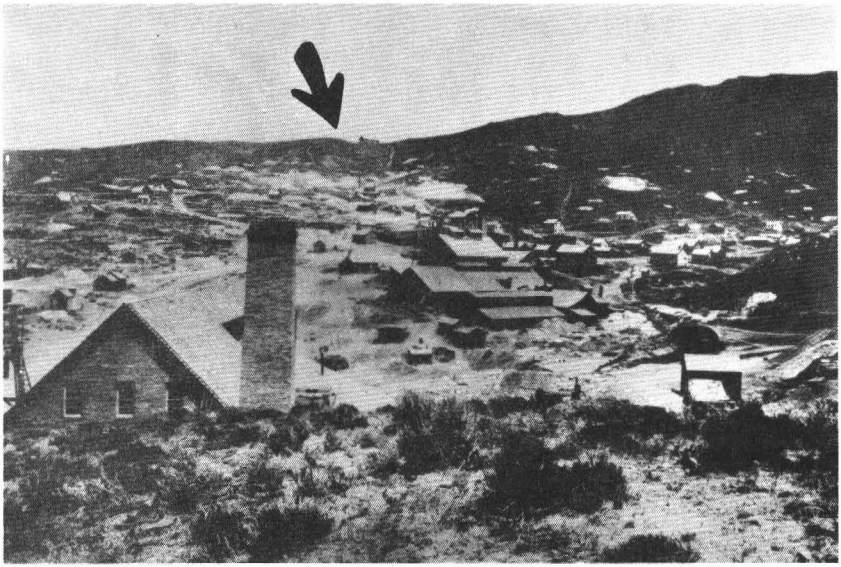

Fig. 1: 1868 view of Lander Hill, Austin, Nevada. Note the barren skyline. (Photo by T. H. O'Sullivan, courtesy of U.S.G.S. Photographic Library.)

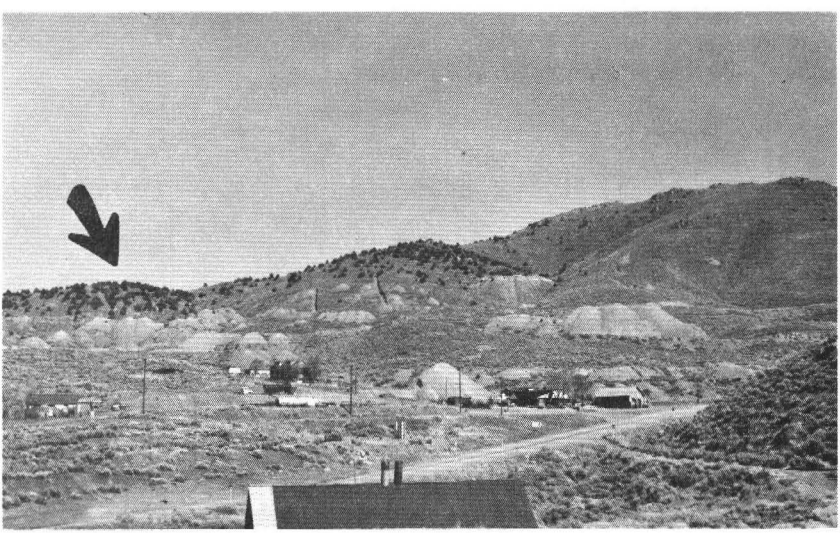

Fig. 2: 1970 view of Lander Hill. Arrows point to same spot in each picture. The trees now form a relatively dense stand. (Photo by E. W. Darrah.)

Historic and Prehistoric Land-Use Patterns in the Reese River Valley[1]

by David H. Thomas

THE REESE RIVER VALLEY of central Nevada, approximately thirty miles south of Austin, in Lander County, is a region which has recently been the object of intensive archaeological investigation.[2] In 1969, the University of Nevada conducted a field course in archaeological methods at Reese River, with twenty-three students. This past summer, the University of California (Davis) returned to the same area with thirty-five students. The primary research objective was to test the viability of Julian H. Steward's classic ethnographic model of Great Basin exploitative patterns in the prehistoric period,[3] and the present paper is an off-shoot of the original focus.

I wish to present results and speculations rather than a methodological description of the Reese River Ecological Project. This paper covers three points. First, I describe prehistoric settlement patterns in the Reese River Valley; this is abstracted from the archaeological evidence. Then I shall briefly outline the well-known mining era of the 1860s which profoundly altered the ecology of the Austin area. Finally, I shall discuss the effect of this ecological shift upon the local Shoshoni Indians.

The Reese River Valley trends north-south between the Toiyabe Mountains and the Shoshone Range. There are four basic lifezones: a riverine association, the sagebrush-covered flats, the piñon-juniper belt

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on the lower flanks of the mountains, and the upper montane sagebrush community. The archaeological resources of the Reese River Valley date back in time at least 4,000 years and there are obvious fluctuations through time. But for present purposes, let us ignore these local changes and paint a unified picture for the prehistoric period. There were basically two foci for aboriginal settlement: the piñon-juniper winter village and the summer gathering camp.

The piñon winter villages were located on the ecotone between the sagebrush flats and the piñon-juniper belt. The camps themselves were located on low, flat ridges. Water was generally within a quarter mile, but these villages were rarely situated directly on streams or springs. There are several possible reasons for this, the most obvious being a reluctance to scare the local game animals from water. Additionally, snow was on the ground during these winter months, obviating the necessity for running water. Cold air drainage down mountain canyons also made the ridge tops more attractive. Bark or grass-covered domed huts probably served for shelter. The nature of these sites is not such as to build deep stratified midden localities. Apparently the occupants returned to the same ridge year after year, but not to the precise camp site. The result is a more or less continuous linear scatter of camp debris rather than the more traditional California-type kitchen midden. In the winter village, the primary subsistence item was the family store of piñon nuts, supplemented by game—probably antelope and mountain sheep.

Sometime during the spring, the piñon caches were generally exhausted, forcing the Indians to the valley floor in search of grass shoots, early ripening tubers, and other riverine crops. The focus was the area where the snow first melted. This was the lean time of year; life was a struggle until the more reliable summer staples appeared. The summer encampments were generally along the courses of the Reese River. Brush windbreaks were probably erected and women pursued their gathering tasks. Artifact inventory is primarily a large, crude, tool kit. Low-grade chert was quarried nearby and coarse, chopper-type tools were manufactured on the spot. Little exotic stone is present in these sites. Families remained in these riverine gathering stations until the fall piñon harvest drew them back to their ridge-top winter camps.

Such was roughly the state of affairs when Captain J. H. Simpson led his party across the Reese River Valley in May, 1859. He described the bunch grass of Simpson's pass as "very abundant and of the finest character."[4] The Reese River supported 2½ pound trout and Simpson described the grass along the Reese River as "luxurient . . . it is best and very abundant further up stream, and extends as far as the eye can see."[5] Contrast this scene with the modern situation along the Reese River, where most native grasses are no longer seen.

The subsequent establishment of the Pony Express in 1860 and discovery of the silver ledges of Austin is well known. More important to this

discussion are the ancillary activities which supported the rich mining districts of Austin and Reese River. Specifically, I refer to the lumbering and livestock activities in the hinterland.

Incipient Austin had great need for lumber, which was necessary for building homes and mills, shoring up mines, fenceposts, and fuel for the stamp mills. So great was the demand for lumber that local supplies had to be vastly supplemented by frequent wagon-loads from the Sierras. These shipments were duly recorded by the news-hungry editor of the *Reese River Reveille,* but lest his readers be misled, he added chauvinistically:

> If anybody does not believe that the Reese River country can produce trees larger than sagebrush, he can be convinced otherwise by just taking a look at the huge piles of all sorts of lumber required for building purposes at the new yard of the Reese River Mill and Mining Company.[6]

> A considerable quantity of lumber comes to the market from the saw mill upon Silver Creek [about 15 miles north of Austin]. This is quite good quality and manufactured from the pinyon, or digger pine, as it is sometimes called.[7]

There was also heavy cutting of stands of piñon, juniper, and mahogany in the Toiyabe and Shoshone Mountains, for firewood.

A second economic demand was for fresh meat. The livestock industry commenced early in Austin's brief history. Lewis R. Bradley, later to be Nevada's second governor, imported a herd of five hundred Texas longhorn cattle into the upper Reese River Valley in 1862. The Reese River herds grew quickly until the cattle numbered in the thousands. The period from the 1880s to the early 1900s also saw myriad sheep imported into the valley. The rich native grasses provided more than ample fodder for the herds. Contemporary accounts in the *Reveille* describe the verdant native vegetation in the following terms:

> In the Valley of Reese River there is a long, green meadow having the appearance of a vast field of barley or wheat . . . only a few weeks elapse before haying commences.[8]

> It's a joy to bovines and horseflesh to see the long, wavy grass which abounds in such profusion on the slope and main ridges of the Reese River Mountains [Toiyabe Mountains] from Austin to Toiyabe Peak and the devil only knows how much further south. Immense tracts may be seen literally covered knee deep in tender grass, looking for the world like young fields of grain.[9]

> [In Grass Valley] grass is more than knee-high at this time, consisting of blue joint, clover and red top. Haying will commence generally about the first of July. At least 700 tons of hay will be put up during the season by different ranches.[10]

But these virgin conditions were soon to change. The Soil Conservation Service has said the early sheep outfits "took all and gave very little in return," resulting in "destructive overuse."[11] The absence of native grasses is apparent even to the most casual traveler today in the Reese River and nearby central Nevada valleys.

The effect upon local timber stands was no less pronounced. Figures 1 and 2 document a century of floristic change on Lander Hill, overlooking Austin, Nevada. The 1868 photograph, by T. H. O'Sullivan (Figure 1) pictures Lander Hill as barren and treeless. The right-hand portion of the photo is underexposed, but the silhouette against the skyline unmistakably indicates the absence of trees of any sort. No photographs exist from the pre-1862 period, but it is certain that piñon and juniper trees formerly stood on Lander and other low hills surrounding Austin. The lumber market first exploited nearby timber stands, and gradually cut further and further up Reese River Valley as more immediate stands were depleted. Other photographs taken over the years document the gradual recovery of the piñon-juniper biotic community, and Figure 2 depicts the modern (1970) situation, with a rather abundant piñon-juniper lifezone. Similar sequences can be produced for Belmont, Cortez, and other local mining camps. Changes such as this in the natural vegetation can be taken as typical of the ecological effects of the mining boom in central Nevada.

If the period from 1862 to 1900 brought change to the intricate natural balances, it revolutionized the lifeway of the Shoshoni. Individuals and families often attached themselves to ranches and mines in a pattern reminiscent of the antebellum Southern Negro. Winter villages were often abandoned in favor of slums near mining towns such as Austin. The importance of wage labor increased as the staples in the native diet were ruined. Perhaps the situation was best described by the Shoshoni Captain Sam, in about 1870, to Indian Agent Gheen:

> . . . the game was all gone; the trees that bore pine-nuts were cut down and burned in the quartz-mills and other places; the grass-seeds, heretofore used by them [the Shoshoni] for food, was no more; the grass-land all claimed by and cultivated by the white people; and that . . . Indians would soon be compelled to work for the ranchers for two bits a day or starve.[12]

I wish to emphasize the "feedback" nature of this environmental and cultural interlude. As Figure 3 indicates, a few Indians initially hired out as wage laborers. Their duties were varied, but many were engaged in either ranching or lumbering industries. That is, during the period under discussion, Indians were generally paid to plow fields and to lumber the hillsides. As stated above, the native economy relied heavily upon two natural crops: piñon nuts and native grass seeds. As farming and lumbering progressed, the aboriginal economic systems faltered. As traditional methods became less productive, more Indians were shunted into wage

labor, where they were paid to further destroy their former livelihood. In the parlance of systems theory, this is a "positive feedback cycle"—a vicious circle. If unchecked, such a loop results in self-destruction.[13]

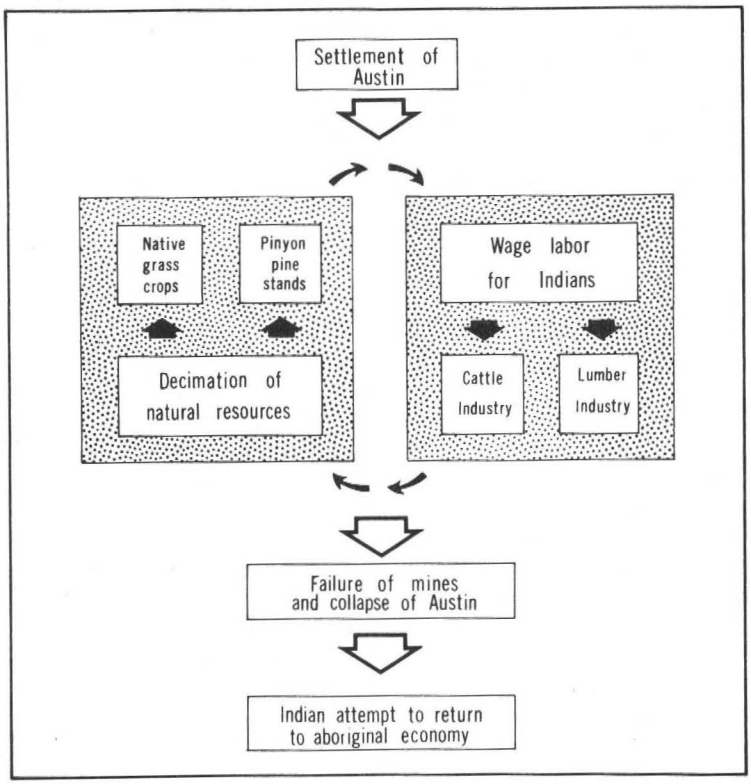

Fig. 3: Feedback mechanism operative in historic Shoshoni adaptive system.

When the mines failed during the 1890 period, wage labor practically disappeared and the semi-acculturated Shoshoni were forced to "learn to be Indians again." Three decades had dulled the hunting-gathering instincts so necessary for survival in such a harsh environment. To make matters worse, the old piñon groves had been reduced to eroding hills. The lush valley vegetation recorded by Simpson and others was now simply sage-dominated flats.

To me, this picture is a depressing one. An economic tradition with a local antiquity of at least 4,000 years was severely crippled in less than three decades of acculturation to Anglo influences. The environment, probably relatively constant for some 5,000 years, was radically altered

by intensive silver mining operations and its supportive activities. Even today, the effects are noteworthy. Piñon forests have returned, but the dominant sagebrush is most reluctant to release its grasp, even in current re-seeding projects. In fact, there is some evidence that a tension zone once existed between grasses and piñon.[14] Given the stresses of last century, the grasses were eliminated, thus permitting the piñon to expand into the non-competitive sage communities. If this is the case, the modern piñon zone may be larger than in pre-contact days. The environmental change would thus be irreversible.

It should be obvious that, allowed to run its full course, the positive feedback occurring during Shoshoni acculturation would have disrupted the entire system. With all piñon gone there would have been no lumbering jobs available. As ranching and farming expanded, the traditional foraging-grounds would have become useless for Indians. Agricultural jobs would persist, but these would probably be insufficient to support the entire aboriginal population. The unemployed would be in dire straits indeed, with traditional staple crops no longer available. The progression, as we know, was not allowed to run its course, because the mines failed and wage labor essentially disappeared. This feedback model is presented as one possible adaptation to the post-1862 situation. There were quite likely alternative pathways, perhaps more fruitful ones.

A final comment can be made about the maladaptive nature of the Shoshoni economic system during this time. This case, and that of the Chumash in southern California, should serve as ample warning against the facile assumption that cultures always adapt for their own survival or that cultures tend to maximize their environment (the so-called mini-max strategy). A restricted parallel can be noted between cultural adaptations and biological evolution: Mutations occur in both cases; false starts and dead ends must occur in any living system, as well as adaptive, successful mutations. Maladaptive cycles can, and do, exist in both the past and the present.

Notes

1. Contribution No. 2 of the Reese River Ecological Project.

2. For further details on the Reese River Ecological Project, see David H. Thomas, "Regional Sampling in Archaeology: a Pilot Great Basin Research Design," *University of California Archaeological Survey Annual Report, 1968–1969* (Los Angeles), pp. 87–100.

3. Julian H. Steward, "Basin-Plateau Aboriginal Sociopolitical Groups," *Bureau of American Ethnology*, Bulletin No. 120 (Washington, D.C., 1938), p. 78.

4. J. H. Simpson, *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* (Washington, D.C., 1876), p. 78.

5. *Ibid.*

6. *Reese River Reveille*, May 3, 1864.

7. *Ibid.*, May 7, 1964.
8. *Ibid.*, June 3, 1863.
9. *Ibid.*, June 6, 1863.
10. *Ibid.*, June 13, 1863.
11. "Reese River Sub-Basin," Soil Conservation Service Report No. 8, Humboldt River Basin Series, p. 29.
12. Levi A. Gheen, [Communication in] Report of the Commissioner of Indian Affairs for 1876.
13. Gary Stickel and Adrienne E. Cooper, "The Chumash Revolt of 1824: A Case for an Archaeological Application of Feedback Theory," *University of California Archaeological Survey Annual Report, 1968–1969* (Los Angeles), pp. 5–22.
14. Fred Emerson, "The Tension Zone between the Gramma Grass and Piñon-Juniper Associations in Northeastern New Mexico," *Ecology*, Vol. 13, pp. 347–358.