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Two Nineteenth-Century Reports of Great Basin Subsistence Practices

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THIS paper concerns two Nineteenth Century ethnographic accounts of subsistence practices of native groups in the Great Basin. The first is a letter written by John Muir (Muir 1918), the eminent conservationist and naturalist. The second (Anonymous 1881) was published in *The West Shore*, a journal of the time. To my knowledge, neither account has received notice by Great Basin anthropologists, though Muir's discussion was noted in passing by Fleck (1985). Because "new" ethnographic information about Great Basin Indians is somewhat rare, such early reports are of interest to current studies of the anthropology of this region, and of hunter-gatherer studies in general. Both accounts are quoted at length; to each I append a brief analysis of their significance to current Great Basin anthropological research.

PINYON HARVESTING NEAR EUREKA, NEVADA

The first account, by John Muir, was written in Eureka, Nevada, in 1878. Muir was exploring Nevada and Utah at the time, as part of a U.S. Coast and Geodetic Survey team (Fox 1981; Fleck 1985). The account first appeared among a series of letters to the *San Francisco Evening Bulletin* (Badé 1918), and also appeared as Chapter 13, "Nevada Forests," in a book of collected papers entitled *Steep Trails* (Muir 1918), published four years after Muir's death. Here is an excerpt:

When the traveler from California has crossed the Sierra and gone a little way down the eastern flank, the woods come to an end about as

suddenly and completely as if, going westward, he had reached the ocean. From the very noblest forests in the world he emerges into free sunshine and dead alkaline lake-levels. Mountains are seen beyond, rising in bewildering abundance, range beyond range. But however closely we have been accustomed to associate forests and mountains, these always present a singularly barren aspect, appearing gray and forbidding and shadeless, like heaps of ashes dumped from the blaming sky.

But wheresoever we may venture to go in all this good world, nature is ever found richer and more beautiful than she seems, and nowhere may you meet with more varied and delightful surprises than in the byways and recesses of this sublime wilderness. . . .

In a rambling mountaineering journey of eighteen hundred miles across the state, I have met nine species of coniferous trees,—four pines, two spruces, two junipers, and one fir,—about one third the number found in California. By far the most abundant and interesting of these is the *Pinus Fremontiana* [*P. monophylla*], or nut pine. In the number of individual trees and extent of range this curious little conifer surpasses all the others combined. Nearly every mountain in the State is planted with it from near the base to a height of from eight thousand to nine thousand feet above the sea. . . .

The value of this species to Nevada is not easily overestimated. It furnishes fuel, charcoal, and timber for the mines, and, together with the enduring juniper, so generally associated with it, supplies the ranches with abundance of firewood and rough fencing. Many a square mile has already been denuded in supplying these demands, but, so great is the area covered by it, no appreciable loss has as yet been sustained. It is pretty generally known that this tree yields edible nuts, but their importance and excellence as human food is infinitely greater than is supposed. In fruitful seasons like this one, the pine-nut crop of Nevada is, perhaps, greater than the entire wheat crop of California, concerning which so much is said and felt through-

out the food-markets of the world.

The Indians alone appreciate this portion of Nature's bounty and celebrate the harvest home with dancing and feasting. The cones, which are a bright grass-green in color and about two inches long by one and a half in diameter, are beaten off with poles just before the scales open, gathered in heaps of several bushels, and lightly scorched by burning a thin covering of brushwood over them. The resin, with which the cones are bedraggled, is thus burned off, the nuts slightly roasted, and the scales made to open. Then they are allowed to dry in the sun, after which the nuts are easily thrashed out and are ready to be stored away. . . . When the crop is abundant the Indians bring in large quantities for sale; they are eaten around every fireside in the State, and oftentimes fed to horses instead of barley.

Looking over the whole continent, none of Nature's bounties seems to me so great as this in the way of food, none so little appreciated. Fortunately for the Indians and wild animals that gather around Nature's board, this crop is not easily harvested in a monopolizing way. If it could be gathered like wheat the whole would be carried away and dissipated in towns, leaving the brave inhabitants of these wilds to starve.

Long before the harvest-time, which is in September and October, the Indians examine the trees with keen discernment, and inasmuch as the cones require two years to mature from the first appearance of the little red rosettes of the fertile flowers, the scarcity or abundance of the crop may be predicted more than a year in advance. Squirrels, and worms, and Clarke crows, make haste to begin the harvest. When the crop is ripe the Indians make ready their long beating-poles; baskets, bags, rags, mats, are gotten together. The squaws out among the settlers at service, washing and drudging, assemble at the family huts; the men leave their ranch work; all, old and young, are mounted on ponies, and set off in great glee to the nut lands, forming cavalcades curiously picturesque. Flaming scarfs and calico skirts stream loosely over the knotty ponies, usually two squaws astride of each, with the small baby midgets bandaged in baskets slung on their backs, or balanced upon the saddle-bow, while the nut-baskets and water-jars project from either side, and the long beating-poles, like old-fashioned lances, angle out in every direction.

Arrived at some central point already fixed upon, where water and grass is found, the

squaws with baskets, the men with poles, ascend the ridges to the laden trees, followed by the children; beating begins with loud noise and chatter; the burs fly right and left, lodging against stones and sagebrush; the squaws and children gather them with fine natural gladness; smoke-columns speedily mark the joyful scene of their labors as the roasting-fires are kindled; and, at night, assembled in circles, garrulous as jays, the first grand nut feast begins. Sufficient quantities are thus obtained in a few weeks to last all winter.

The Indians also gather several species of berries and dry these to vary their stores, and a few deer and grouse are killed on the mountains, besides immense numbers of rabbits and hares; but the pine-nuts are their main dependence--their staff of life, their bread.

Insects also, scarce noticed by man, come in for their share of this fine bounty. Eggs are deposited, and the baby grubs, happy fellows, find themselves in a sweet world of plenty, feeding their way through the heart of the cone from one nut-chamber to another, secure from rain and wind and heat, until their wings have grown and they are ready to launch out into the free ocean of air and light.

Commentary

Though parts of this passage were repeated nearly verbatim in Muir's account of the single-needed pinyon in his *The Mountains of California* (1911:219-222), this fuller description is more valuable in several respects. First, it is a very early (though general) description of harvesting of pinyon pine nuts. In particular, Muir described green-cone harvesting, anticipating Dutcher's (1893) better-cited description by some fifteen years. Green-cone harvesting, as Muir noted, involves knocking pinyon cones off the trees while the cones are still unopened and opening them with fire. This particular practice of collecting pine nuts is labor-intensive and quite elaborate relative to collection of pine nuts after they have dispersed upon cone opening, a practice called brown-cone procurement (see Madsen [1986: 29-30] for a concise summary of these methods). According to Bettinger and Baumhoff

(1983), the green-cone method reduces the potential for other competitors (squirrels, birds, etc.) to get at the cones, and it also increases the period of harvest, thus ensuring a larger overall take; but because it is so labor intensive, the process results in a lower yield of nuts per unit of time spent collecting them. Implications of this technique of pine nut harvesting for Great Basin prehistory were discussed by Bettinger and Baumhoff (1982, 1983).

A second important point brought up by Muir involves the potential superabundance of the pinyon resource, as well as the difficulty in "monopolizing" this superabundance. Apparently, Muir happened on the Eureka vicinity during a good year for pinyon harvests; this was probably not the norm (Thomas 1972a; cf. Sutton 1985). Probably pinyon harvests usually were lower in yield, meaning that fewer Great Basin Indians could have relied on them for subsistence through the winter. Thus, a good year potentially would appear as a superabundance, in accord with modern ecological notions of the term (Forcella 1978; Janzen 1976). The fascinating phenomenon of superabundance is an adaptive strategy in which an organism produces a low "average" yield of reproductive units (e.g., seeds or larvae), thus limiting the number of competitors for those reproductive units. But occasionally the organism produces great amounts of reproductive units, potentially fully satisfying the existing consumer population and still having enough viable offspring left over for reproductive success. In the case of the pinyon pine, those seeds not eaten by humans or other competitors could germinate, producing new trees, or the surplus could be stored, some of which might be forgotten and also germinate, producing new trees. In these ways, pinyon trees would have increased as a population through the strategy of superabundance.

Interestingly enough, Muir recognized that during this period of superabundance, monopolization of the pinyon crop by humans could not be accomplished effectively: "squirrels, and worms, and Clarke crows, make haste to begin the harvest." Though the green-cone harvesting technology of humans is fundamentally a monopolizing technology, reducing the potential for other competitors to obtain their share, this "monopoly" certainly could not be complete. If the total yield was truly superabundant, then the human consumers would not have been able to use the excess, and this would be available to other predators. Further, squirrels and "worms" have their own green-cone harvesting strategy, beginning well before humans would consider taking cones. Hence, all would have taken their share, and green-cone procurement would not be a very efficient means of monopolization, though certainly more efficient than the brown-cone procurement alternative.

A third issue of current anthropological importance is the predictability of the pinyon crop. A major conclusion of Steward's (1938) analysis of Shoshonean subsistence economy and settlement patterning was that the small size of the basic economic units and the extreme fluidity of movement of those units was in large measure a response to reliance on pinyon crops, which Steward considered erratic and unpredictable in distribution. Thomas (1972a) argued that the extent of pinyon crops in an area could in fact be partly predicted up to over a year in advance, basing his suggestion on the fact that pinyon cones require two years to fully develop. Investigators have since pointed out the potential pitfalls of biological competition or physical catastrophe (Thomas 1972b; Lanner 1981:73-81) in accurately predicting crop yields more than a few months in advance; yet the lack of pinyon crops in an area could always be anticipated. At the

time, the claim was regarded as "serendipitous" (Thomas 1972a:690-691), for it suggested a greater ability of Great Basin groups to predict their settlement movements in advance. Unfortunately, it lacked strong ethnographic support (cf. Wheat 1967:116). Muir's statement in this context appears to lend strong ethnographic confirmation to Thomas's suggestion that Great Basin groups did in fact predict crop abundances well before harvest time. It would be difficult to get more serendipitous than this.

Finally, Muir clearly implied that, by 1878, pinyon was still an important subsistence and economic pursuit for many Great Basin Indians. However, central Nevada was being overrun more and more with ranchers and miners, inexorably wiping out the Indian way of life. Lanner (1981:124-130) provided a valuable illustration of the near-total destruction of the pinyon-juniper woodlands surrounding Eureka during the 1870s, during which time Muir wrote this account. For many Indians, the pinyon harvest was to be a precious time-out and release from a life of servitude to Anglo miners and ranchers.

When he was traveling in the Eureka area, Muir remarked about the unrest among the "Pah Utes" towards Anglo domination in the vicinity. Fleck (1985:41) suggested that, at the time, Muir "suffered somewhat of a setback" in his usually sympathetic views towards Indians, thinking perhaps that they were all secretly ready to murder him. I cannot agree with Fleck's interpretation; to me, the lives of the Great Basin natives are portrayed by Muir as joyous, tranquil, and free from desperation, as is possible given the time period in which they were written.

CATCHING FISH IN WALKER RIVER

The second ethnographic account, entitled "An Indian Fishery," was published in *The West Shore*, in March, 1881. It relates a native fishing practice observed some twenty

years earlier by a visitor to western Nevada. Although the article does not state where the fishing was observed, a figure caption places the event somewhere along the Walker River. The article (Anonymous 1881) is reprinted in its entirety here:

Our illustration shows the style of fishing practiced some years ago by the Piute Indians in Nevada [Fig. 1]. A tourist of a score of years ago gives the following account: As we rounded a little knoll we discovered the entire rancheria of Indians in a bend of the river making preparations to catch fish, and we at once rode down to witness the sport, which proved to be a novel scene. Stretching nearly across the stream was a rocky bar, over which a very little of the water rippled, while the main body of it made a sudden bend around, keeping close to the opposite bank. Just above the bar was a deep eddy, and above this the stream was broad, shallow and rapid, and skirted on each side with a thick growth of low, withy willow. Here of this willow the Indians made a drag about two ft. in diameter and in length sufficient to reach across the stream. On the bar they had built a slight wall of the small rock in the form of a half circle, at the lower side of which was a willow fish-trap, the water being only a few inches or a foot deep inside the circle. When all was ready they swung the drag out across the stream and let it sweep down to the eddy when they all gathered in above it and keeping it near the bottom swept it through to the shallow bar, bringing the two ends to join the wall, when they had all the fish "corralled" within the circle, then pressing their knees upon the drag to keep it firmly to the bottom, they commenced the exciting sport of pulling out the fish, which as a matter of course tried to find a place of egress at the upper side. The suckers, which constituted a greater portion of the fish, were easily taken in this way; but the trout, more wily, flipped lightly over the drag and away up the stream again. The scene they presented as they knelt over the drag, men and squaws, old and young mixed up indiscriminately, and carried the fish to their mouths as they caught them to bite their heads, frequently holding them in their teeth for some minutes, the poor suckers twisting themselves spasmodically in their death agonies, was truly ludicrous and amusing. A few of the fish entered the trap, and at the last, one big fellow, seemed to have got the idea of the

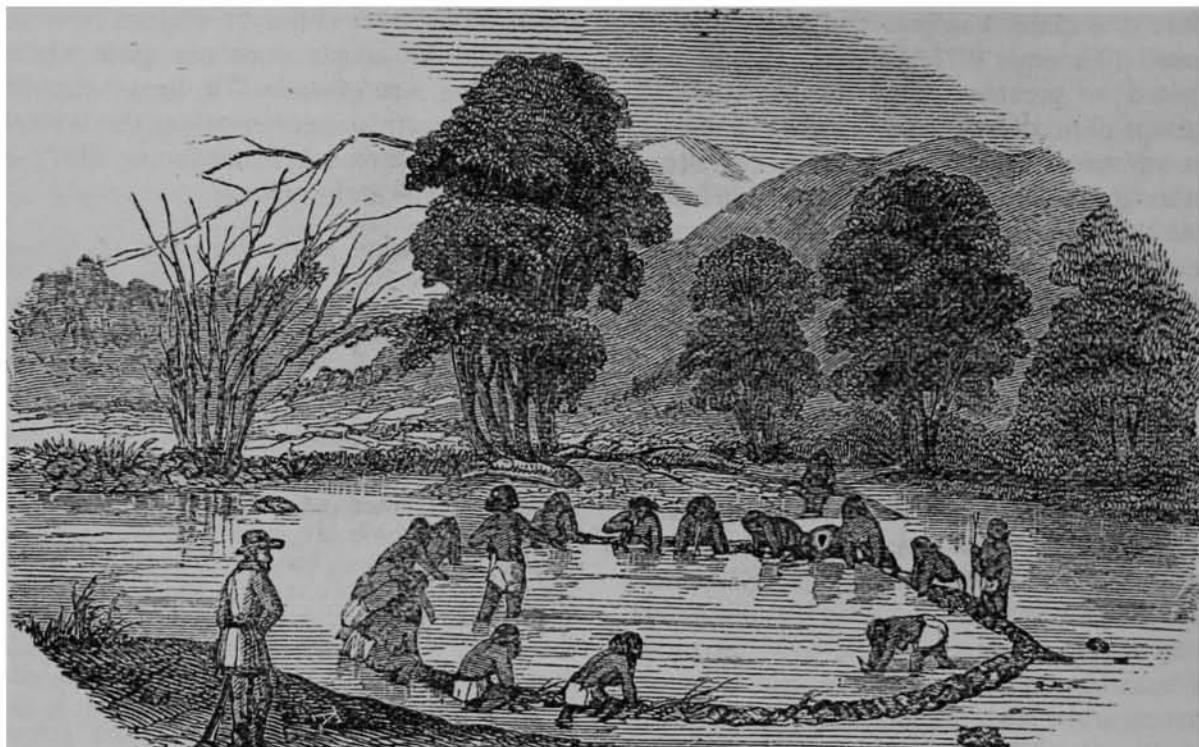


Fig. 1. "Indians Fishing on Walker River." From *The West Shore*, March 1881, p. 63. Special Collections Division, University of Washington Libraries, Negative No. 9415.

danger that awaited him on either hand, and flipped about in the center of the pool, foiling for a long time all their efforts to catch him, they in the meantime getting highly excited, but finally a squaw pounced upon him and held him up in triumph.

Commentary

The illustration accompanying the article (Fig. 1) shows a group of 18 people in a river, provoking the curiosity of an obviously Anglo observer. The major features of the described scene, including the people arming the "drag," the rock wall weir, and the fish trap, are all shown.

This form of fishing, essentially a communal aquatic game drive, was practiced by the Washo, according to a nearly identical description by Freed (1966:76). Downs (1966) noted that the Washo fished primarily around Lake Tahoe, but they also occupied the

Walker River Valley on a seasonal basis, and it is possible that the group discussed above were in fact Washo Indians.

Stewart's (1943:371) summary of Northern Paiute fishing practices lists several groups in the region that caught "fish driven with willow bundles," including those living around Pyramid Lake, the Carson Sink area, and lower Walker Lake, but not those inhabiting the Walker River Valley. Stewart also summarized the essentials of this fishing practice among the Owens Valley Paiute: "nets of *wicivuva* [*Amsonia* sp.?], described as like rabbit nets, 50 by 3 feet. Several people, holding a net, drove fish to the shallow end of a pool, there gathering them" (Stewart 1933:252). The case above simply substitutes a willow drag for a net. Analyses of Willard Park's ethnographic studies among the Paiute groups of the western Great Basin

by Fowler and her colleagues (Bath 1978; Fowler and Bath 1981; Fowler and Liljeblad 1986), make no mention of this technique, nor does Speth's (1969) study of communal fishing in the Walker River by Northern Paiute men.

SUMMARY COMMENTS

These two reports, apparently written within just a few years of one another, are perhaps a good illustration of a range of attitudes taken by the nineteenth-century reading public towards Indians. For Muir, the pinyon harvesters lived harmoniously in nature's bounty, using what was available without taking from others. They bore a knowing and noble relationship to the Great Basin environment, a relationship that had escaped European settlers. The tone taken by Muir in describing the scene was typically studious, schoolmasterly, and vibrant with the worship of nature as a mystical experience that would enlighten one's own life. The Indians Muir observed were, in his eyes, an integral part of nature, and thus an abiding part of Muir's transcendental philosophy.

The author of the fishing account is also studious and curious, presenting an ingenious and, for Europeans, novel way of fishing. But the tone of the piece is also mocking, treating the Indians of the scene as rather clever and humorous animals, fit to be watched with amusement before one moved on and forgot them. There is little evidence that the author who witnessed the event drew much from it beyond an amusing tale.

Though the two accounts may differ in these ways, one facet of the lives of Great Basin native groups that both authors make clear is the great pleasure they derived in their communal activities. At a time when the native way of life was fast dissolving through the depredations of disease, forced removal from traditional homelands, and destruction of forests and streams by mining

and farming, joy could still be found in the company of kindred and the excitement of the chase.

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