

THE PATH OF A PATHFINDER: WALKER'S ROUTE
TO CALIFORNIA IN 1833

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ABSTRACT: Joseph Reddeford Walker conducted a party of men across the Sierra Nevada to the Pacific coast of California in 1833. Previous interpretations of the portion of the route from Humboldt Sink, Nevada, to the San Joaquin River, California, are not satisfactory. A body of descriptions of the terrain traversed exists in the narrative of Zenas Leonard, and is sufficient to reconstruct the route with more precision. Coincidence of the distributions of specific aspects of the physical geography of the area results in identification of major points of passage. The distributions of pumice, highly alkaline lakes, and Ephydrans lead to the conclusion that Walker passed near Mono Lake, California. The distribution of canyons and of vegetation similarly identifies the dividing ridge between the Tuolumne and Merced rivers, California, as a point of passage. Further refinement of the route by correlation of the descriptions with the actual terrain provides a detailed route.

I. INTRODUCTION

In the summer of 1833 a party of men under the leadership of Joseph Reddeford Walker left the Green River Valley in Wyoming bound for California. In the fall of the same year Walker's party became the first white men to make a westward crossing of the Sierra Nevada, California. Despite what seems to be a sufficient body of information

concerning the travels of this party, there has been as yet no common agreement on the route followed by Walker.

Though historical interest is sufficient reason to desire more precise location of Walker's route, it is also to be noted that accounts of the Walker expedition have occasionally been cited in anthropologic literature.¹ Thus, determination of Walker's route should be of anthropologic as well as historical value.

Although information concerning the expedition is relatively abundant, it is not possible to trace Walker's route accurately from the literature directly. The major problems are confused dates, and descriptions of terrain features that are too general for unique identification. However, I believe that descriptions of a sufficient variety of non-ubiquitous terrain features are available to allow a more precise determination of Walker's route by "coincidence of distributions," i.e., the mental or cartographic superposition of the distributions of the various features of terrain described, in order to determine a number of specific points along the route. A new interpretation of the route of Walker's party based on the above methodology is subsequently presented.

The California Expedition

Joseph Reddeford Walker was born December 13, 1795, in Roane County, Tennessee. He moved with his family to

Missouri in 1813 where, after spending several years in the fur trade, he served as sheriff of Jackson County from 1827 to 1831. At Fort Gibson in 1831, while in the business of securing and furnishing horses to the fur traders at Independence, Walker met with Captain Benjamin L. E. Bonneville, Seventh Infantry, U. S. Army.² Bonneville had been developing a scheme to explore, while on temporary leave from the army and with financial backing of eastern fur merchants, the territory west of the Rocky Mountains.³ Walker accepted the offer of a position as lieutenant and guide for Bonneville's expedition, and after much initial preparation the expedition of 110 men left Fort Osage, on the Missouri River not far from Independence, on May 1, 1832.

The summer of 1833 found Bonneville's company encamped in the Green River Valley, in the present state of Wyoming, about 250 km. east of Great Salt Lake. On July 24 a brigade of forty men under Walker was detached from Bonneville's company, and set out for California.⁴ Walker's party passed around Great Salt Lake to the headwaters of the Humboldt River, traveled down the Humboldt to the vicinity of Carson Sink in present-day Nevada, crossed the Sierra Nevada into the central valley of California, and wintered in Monterey on the California coast. In the spring of 1834, Walker's party left California, crossing the Sierra Nevada at a pass, which now bears Walker's name, near the southern terminus of the range and proceeded generally northward

until they encountered traces of their westward journey of the previous fall. The party then followed their former course up the Humboldt River, and rejoined Bonneville's company in the early summer of 1834.

Information concerning the travels of Walker's California expedition has been directly or indirectly derived from six members of the party: Zenas Leonard, Joseph Meek, Stephen Meek, George Nidever, William Craig, and Joseph Walker himself.⁵ However, only the account provided by Leonard is anything other than superficial. Leonard's narrative is fairly detailed, but is rather confused in portions. As a result, the portion of Walker's westward travels from approximately the terminus of the Humboldt River through the crossing of the Sierra Nevada has never been determined with any degree of certainty.

Previous Interpretations of Walker's Route

There have been several original attempts to detail Walker's route across the Sierra Nevada, the majority of such attempts being best characterized as indifferent with respect to correlation of the existing accounts with topographic features (Map). H. H. Bancroft simply accepted with corroboration by Nidever's account, the account given in the Sonoma Democrat obituary of Joseph Walker:

...from the [Carson] sink, south-westward
by what are now Carson lake and Walker

lake and river, over the Sierra near the head waters of the Merced, and down into the San Joaquin Valley.⁶

H. M. Chittenden, following Leonard's account, suggested Walker began crossing the Sierra in the vicinity of Sonora Pass, but eventually worked his way south to the headwaters of the Merced River, which he followed out of the mountains into the San Joaquin Valley.⁷ F. F. Victor, ostensibly on the basis of Joseph Meek's recollections, gave the route as from the neighborhood of Humboldt Sink to Pyramid Lake, thence up the Truckee River, across the Sierra and into the Sacramento Valley.⁸

D. S. Watson, following Leonard's account, stated that Walker followed up the Carson River from its sink until the terrain became impassable, then struck southward to the vicinity of present-day Bridgeport, California.⁹ Walker then followed up a valley and crossed the Sierra Nevada, coming down the ridge between the Merced and Tuolumne rivers, passing through the Tuolumne grove of Big Trees (Sequoiadendron giganteum), and into the San Joaquin Valley.

The writers above included interpretations of Walker's route within larger works on topics of a more general nature, and apparently relied heavily on historical documents. Only Watson attempted to correlate the historical evidence with known topographic features, and even here much serious effort is not evident. There have been others, however,

who have focused their efforts more or less directly on the problem of Walker's route. Each of them used Leonard's narrative as a basis for his interpretation.

F. N. Fletcher addressed the issue in two publications, and suggested that Walker left Carson Lake by way of the Carson River, along which he traveled until reaching a point in Carson Valley a few miles south of present-day Carson City, where he then proceeded up a canyon and across the Sierra Nevada.¹⁰ Fletcher felt Walker must have then traveled southward along the Sierra Nevada summit from a point east of Lake Tahoe to the vicinity of Carson Pass. Fletcher did not attempt to trace the route farther, though he felt Walker probably passed along the ridge north of Yosemite Valley into the San Joaquin Valley.

W. M. Maule concerned himself mainly with the portion of the route from the Carson Desert to the summit of the Sierra Nevada.¹¹ Maule plotted Walker's route on a series of 1:125,000 U. S. G. S. topographic maps, and left very little written explanation. Maule indicated that Walker followed up the Carson River to Churchill Valley, where he crossed the Carson River and proceeded generally south-southwest, passing through Churchill Canyon and along the eastern base of the Pine Nut Mountains which Walker then ascended at a point approximately west-southwest of Artesia Lake. Maule then gave Walker's route as generally to the southwest,

passing across Double Spring Flat, then passing south of present-day Markleeville through Pleasant Valley, Indian Valley, and into Hermit Valley. The route was not plotted farther, but Maule stated his belief that Walker saw the Calaveras Grove of Big Trees, so Maule must have believed that Walker passed southwest from Hermit Valley along the ridge immediately north of the Stanislaus River, through the Calaveras Grove and thence into the San Joaquin Valley.

F. P. Farquhar, having recognized the difficulties of tracing Leonard's account on a day-by-day basis, concluded that Walker had traveled from Humboldt Sink over an unknown route to Bridgeport Valley, California, and from there ascended the Sierra Nevada via one of the tributaries of East Walker River (probably Green Creek or Virginia Creek), and crossed into the vicinity of Virginia Canyon of the Tuolumne drainage.¹² From there Walker proceeded southwest, crossed the Tuolumne River probably near Conness Creek, and traversed the ridge between the Tuolumne and Merced rivers, passing by Tenaya Lake and subsequently through either the Merced or Tuolumne Grove of Big Trees, and thence down to the San Joaquin Valley.

If anything may be concluded from the above interpretations, it is that Walker's route from Humboldt Sink to the San Joaquin Valley is in doubt. It is difficult to place confidence in any one of the above interpretations for

various reasons. The interpretations of Chittenden, Victor, and Watson do not allow the reader to evaluate the interpreter's methodology. In addition Victor's proposed route is based on information furnished by Joseph Meek which is conspicuously divergent from that of other sources. The proposals by Maule and Fletcher seem to rely too heavily on day-by-day reconciliation of topography with a portion of Leonard's narrative which is obviously characterized by large gaps between given dates. Bancroft's proposal, though generally suggesting what I believe to be the correct route, lacks detail and evidences no serious interpretive effort.

Farquhar's effort is admirably thorough. It is the most reasoned and detailed effort of the group. However, I believe that Farquhar was mistaken in his interpretation of the portion of Walker's route from the vicinity of Carson Sink to the point of initial ascent of the Sierra Nevada.

II. DESCRIPTION AND EVALUATION OF SOURCES

Six members of Walker's party have directly or indirectly left accounts of the 1833-1834 expedition to California.¹³ The best account of the expedition is the detailed narrative of Zenas Leonard, who kept a journal of his experiences in the fur trade in the West for a period of over four years beginning in April, 1831. Leonard was induced to publish an account of his adventures after he returned to Pennsylvania in 1835. He apparently had lost portions of his journal, which probably accounts for gaps and omissions characterizing portions of the narrative.¹⁴ His publisher received the manuscript late in 1838, and the account was first published in book form in 1839. This narrative has been the basis of the best of the previous interpretations of Walker's route, and is the primary source for this interpretation as well, the following sources serving with few exceptions only to verify the basic authenticity of Leonard's narrative. Approximately 10,000 words in Leonard's narrative are devoted to the portion of Walker's route under study here, and from this pertinent descriptions of the physical and cultural landscape have been extracted, and paraphrased (Appendix).

William Craig's brief account in the Lewiston Morning Tribune yields no information that would have any bearing on the portion of Walker's route under examination here.

Stephen Meek's autobiography states only that:

We discovered Truckee, Carson, and Walker rivers, Donner Lake and Walker's pass, through which we went and pitched our camp for the winter on the shore of Tulare Lake, in December, 1833.¹⁵

Stephen Meek's account published in the Niles Register furnishes no information that would in itself contribute to identification of the route, but some dates were given which are of corroborative value, provided allowance is made for an error of exactly three years in date with respect to Leonard's narrative (1836 as opposed to Leonard's 1833).

Nidever's autobiography states that:

In June of 1834 [sic] we crossed the Sierra Nevada mountains and came down through a valley between the Merced and Tuolemi [Tuolumne] rivers, into the San Joaquin Valley.¹⁶

In addition, Nidever discussed events which corroborate portions of Leonard's narrative.

Joseph Meek's account, coming down to us through the writings of Victor, poses a unique problem in that it is difficult to separate interpretation from fact. In addition there seems to be reason to believe the account may have been embellished somewhat. However, phrases like "...canyons thousands of feet deep....," the crossing "...of immense fields, or rather oceans, of granite....," and being surrounded by "...rocky peaks and pinnacles fretted by ages of denudation to very spears and needles of a burnt looking, red colored rock..." seem to be worthy of consideration.¹⁷ Also,

Victor's contention that Walker, while in the San Jose Valley, California, encountered a company of Spanish soldiers who then conducted Walker's party to Monterey, although possibly distorted does tend to corroborate a more plausible account of an incident to be subsequently discussed.¹⁸

Joseph Walker himself was the source of three separate accounts of the expedition. Walker was the indirect source of the account given in Irving's Adventures of Captain Bonneville. This account is of no aid in ascertaining Walker's route, but it does corroborate events given in Leonard's narrative, and gives what is probably the correct date of the previously mentioned departure of the expedition from Green River Valley. The occasion of Joseph Walker's death on October 27, 1876, prompted publication of obituaries of Walker in the Sonoma Democrat and the San Jose Pioneer, both of which were founded on interviews with Walker.¹⁹ The Democrat account states that Walker proceeded from Humboldt Sink to Carson Lake, then to Walker River and Lake, saw Mono Lake, and crossed the Sierra Nevada near the headwaters of the Merced River. It also gives the location of the camp, where the meteor shower of November 12, 1833 was observed, to be on the San Joaquin River "below" the mouth of the Tuolumne River.²⁰ The Pioneer obituary stated that Walker initially hoped to pass through the Sierra Nevada by way of a river that was reported to pass through the Sierra Nevada to the

Pacific coast (the mythical Buenaventura River). This corroborates a statement by Fremont to be subsequently discussed. In addition, the Pioneer account also states the following:

His first attempt to descend to the west was near the headwaters of the Tuolumne, which he found impossible but on working a little to the southwest he struck the waters of the Merced and got into the Valley of the San Joaquin. His was the first white man's eyes that ever looked upon Yosemite...

There are three additional sources of information that lend credence either to Leonard's account or to conclusions drawn here, though none is an account of the expedition per se. The Archives of San Jose contain a document stating that a company of Californians under one Sebastian Peralta encountered a party of what were termed "French" trappers on the San Joaquin River from whom three horses stolen from Californians were taken.²¹ A careful reading of the document further suggests that the place of encounter must have been no farther north than the general vicinity of the Mokelumne River, and must have taken place in early November, 1833, certainly prior to November 10. If the Democrat account is correct in placing Walker very near the Tuolumne River mouth on November 12, then the encounter must have been between the mouths of the Tuolumne and Merced rivers. The horses were likely those Walker acquired from the Indians in the San Joaquin Valley, which had Spanish brands.²² Assuming a

negligible likelihood of another band of trappers being in the immediate vicinity under similar circumstances at the same time, this document clearly supports the accuracy of Leonard's narrative with respect to date and general location. The aforementioned account by Victor as derived from Joseph Meek seems to recount the above situation, but probably is related to an occurrence later in November after Walker's party had already reached the Pacific coast.²³

L. H. Bunnell, in defending his stature as a member of the first party of white men ever to set foot in Yosemite Valley proper, in 1851, substantiated Walker's claim to have traversed the ridge between the Tuolumne and Merced rivers.²⁴ He quoted an Indian chief Ten-ie-ya as saying that a small party of white men had once (apparently well prior to Bunnell's claim) crossed the mountains along the north side of Yosemite Valley but did not descend into the valley proper. Bunnell also triumphantly quoted Walker as admitting that Ten-ie-ya's statement was in fact true, that Walker had kept near to the divide, and had encamped on Bull Creek.

Several relevant pieces of information were found in the writings of John Charles Fremont, who related a story told by Walker concerning a previous incident when Walker and a party of men, while in the region east of the Sierra Nevada, encountered some Indians "...encamped near a small salt lake..." from whom Walker's men obtained some bags of dried

fly larvae used as food by the Indians.²⁵ Leonard's narrative contains two accounts of such an occurrence.²⁶ Fremont also related, in connection with the trout of Pyramid Lake, Nevada, a statement by Walker that implied Walker had never seen Pyramid Lake.²⁷ Finally, Fremont related a statement by Walker that he, like Fremont, moved southward along the eastern face of the Sierra Nevada, searching in vain for the Buenaventura River until hope for its existence was abandoned, whereupon he turned "abruptly to the right" and crossed the mountains.²⁸ This conforms to the previously-mentioned statement in the Pioneer.

III. METHODOLOGY OF RECONSTRUCTION

In reconstructing Walker's route, a preliminary route corridor was first determined on the basis of the historical documents. Next the physical descriptions were analyzed, searching for those characteristics which seemed most distinctive in order to determine some major points traversed along the route. Finally, the detail of the route between major points was established, in conformance with the descriptions given and other evidence.

Preliminary Route Corridor

Careful study of the evidence summarized above leads to a preliminary conclusion that Walker, after leaving the vicinity of the Carson Desert, Nevada, crossed the Sierra Nevada and came down into the San Joaquin Valley of California. Evidence also strongly suggests that Walker traversed the dividing ridge between the Merced and Tuolumne rivers in what is now Yosemite National Park. However, this conclusion was not immediately drawn because of a possible bias in some of the evidence. Bunnell demonstrated the existence of considerable controversy on the matter of who should be credited as non-Indian discoverer of Yosemite Valley.²⁹ Walker is the source of much of the evidence for a route passing over the Tuolumne-Merced divide, which certainly tends to substantiate his claim for discovery of

Yosemite (as evidenced by the epitaph on his grave marker: "...Camped at Yosemite, Nov. 13, 1833..."³⁰), and since this evidence does not pre-date Bunnell's discovery date in 1851, it was felt that further substantiation of this location should be made, if possible.

Reconstruction of the Route

The formulation of the preliminary corridor above allows restriction of the area requiring more intensive study, resulting in a considerable saving in study effort. In this case the possibility of a crossing via Truckee and American rivers into the Sacramento Valley, California, was eliminated. More precise determination of Walker's route involves correlation of various topographic features with descriptions of terrain as given in the Leonard narrative. Some of the descriptions were of relatively uncommon features; other descriptions were of features exhibiting varying degrees of commonality. In general, the features were examined in a subjectively-determined order of increasing ubiquity in order to minimize unproductive effort.

Summary of Evidence

Zenas Leonard's narrative provides the basis for the determination of Walker's route. This source was the only source to provide great detail, and its basic veracity is well supported by other accounts. Portions of the account

are apparently confused, however, probably because Leonard had lost portions of his journal, as previously mentioned. Although dates given in the account pertaining to the actual traverse of the Sierra Nevada and subsequent descent into the San Joaquin are probably correct, the earlier dates in the account are not. They are apparently one calendar month off, as indicated by the repetition of the date "September 4," and later reference to the occasion of its first use as "4th of August" instead; the date of departure given by Irving further substantiates the contention of a one-month discrepancy.³¹

In addition, there seems to be a paucity of information on the area traversed between the Carson Desert and the point of ascent of the Sierra Nevada. This is a problem that requires subjective interpretation, and will subsequently be discussed further.

It is not difficult to conclude from Leonard's narrative that Walker traversed the following general areas:

- a) Humboldt Sink, Nevada, and adjacent portions of the Carson Desert, Nevada;
- b) The southwest portion of the pluvial Lake Lahontan drainage adjacent to the east-facing slope of the Sierra Nevada, California;
- c) The Sierra Nevada;

- d) The valley of the San Joaquin River,
California.

Summarizing Leonard's descriptions (Appendix), Walker's party while in the Carson Desert is seen to have passed by a chain of low swampy lakes in a generally dry and barren country. These lakes and environs were inhabited by a group of poor Indians who depended heavily on resources provided by the lake environment for subsistence, notably the larvae of a fly washed up on its shores.³²

After leaving the vicinity of these lakes, Walker's party encountered a large, highly alkaline lake in an area where pieces of pumice were common and found scattered about the lake and beaches. The immediate neighborhood was also dry and barren, was adjacent to the east-facing slope of the Sierra Nevada, and was inhabited by Indians. The Indians apparently harvested fly larvae from this lake, as had the Indians in the Carson Desert. Near a river which flowed into the lake and headed in the mountains, an Indian trail was found, which traversed the mountains from the west as evidenced by signs of horse travel.³³

Walker's party followed up this Indian trail and crossed the Sierra Nevada. On the long trek across the summit, deep snows and possibly glaciers were encountered. The slopes of the peaks were barren at first, and gradually the terrain began to support a scrubby timber. The latter portion of the crossing was down a ridge which conveniently

headed generally west between two inaccessibly deep and precipitous canyons. While descending the western slope along this ridge the timber became abundant and large, some of which must have been over nine meters in diameter.³⁴

Finally, Walker's party reached the plains of the San Joaquin Valley. These plains were characterized by several rivers which all had their sources in the Sierra Nevada and ran parallel to each other toward the west.³⁵

Walker's Route by Coincidence of Distributions

Determination of a few specific locations along the route effects a considerable narrowing of the preliminary corridor. In this case location of the alkaline lake near the eastern base of the Sierra Nevada, and location of the ridge traversed by Walker in crossing the mountains, effectively determine the route in question.

The Alkaline Lake. The location of the alkaline lake whose waters have superior washing qualities, whose shores are strewn with pumice, and which supports the existence of a fly whose larvae are harvested by Indians, has clearly been a problem to interpreters of Walker's route. Fletcher, Maule, and Watson apparently believed this to be Carson Lake in the southern Carson Desert, Nevada (Map). Farquhar recognized the possibility that Mono Lake, California, might have been seen, but dismissed the idea, concluding that the

narrative had not brought the party far enough south to encounter Mono Lake.³⁶ Although a literal interpretation of Leonard's narrative does at first suggest a single day's travel from the vicinity of Humboldt Sink, and thus Carson Lake, or possibly Walker Lake, as the source of the above description, the previously demonstrated problems of confused dates and large gaps between dates preclude strict dependence on literal interpretations. The identification of Walker Lake, or even worse, Carson Lake, necessitates the conclusion that from September fourth to October tenth Walker's party lingered in a barren area providing few resources and inhabited by hostile Indians, while in a condition of low provisions and facing the crossing of an unknown range of mountains with winter approaching. I do not believe this would have been a sensible course of action, and doubt that it occurred.

The lake in question was a "large" lake according to Leonard, which must have meant that its dimensions would be measured in miles (remembering that the party had seen Great Salt Lake). The lakes generally fitting this description in the basin of pluvial Lake Lahontan in Nevada are Pyramid Lake, Winnemucca Lake (now dry), Carson Sink and Carson Lake (playa lakes subject to wide fluctuation in size), and Walker Lake; in California the only reasonable candidate is Mono Lake.³⁷ The lake in question was also highly alkaline,

as evidenced by its water's capacity for washing clothes. Although all the lakes of this portion of the Great Basin tend to be alkaline, Russell found only Soda Lakes, Nevada, and Mono Lake, California to be extremely alkaline.³⁸ Soda Lakes are a pair of small lakes, the largest being about a kilometer in diameter, located about twenty-five kilometers northwest of Carson Lake.

The detergent property credited to the waters of the lake in question is intriguing. Leonard said:

The water in this lake is similar to lie, and tastes much like pearlash. If this river [sic] was in the vicinity of some city, it would be of inestimable value, as it is admirably calculated to wash clothes without soap, and no doubt could be appropriated to many valuable uses.³⁹

Many well-known persons have commented on the detergent property of Mono Lake waters, it was surprising to discover. None was better known than Samuel Clemens, however, who commented:

...its waters are so strong with alkali that you only dip the most hopelessly soiled garment into them once or twice, and wringing it out, it will be found as clear as if it had been through the ablest of washerwomen's hands. While encamped there our laundry work was easy. We tied the week's washing astern of our boat, and sailed a quarter of a mile, and the job was complete, all to the wringing out. If we threw water on our heads and gave them a rub or so, the white lather would pile up three inches high.⁴⁰

No such commentary could be found for any other waters of

the area.

Also related to the question of alkalinity is the existence of a fly mentioned in Leonard's narrative in association with this lake and another in the vicinity of Humboldt Sink.⁴¹ The larvae of this fly were harvested as food by the Indians of the area. That this activity occurred among the Northern Paiute peoples of the Great Basin is well-known to anthropologists and others.⁴² Stewart indicated only three sources of these larvae, termed "cutsavi" or "Kutsavi": Mono Lake, Soda Lakes and the south slough of Pyramid Lake; no larvae were found in Carson Lake, according to informants.⁴³ That the larvae of this fly, Ephydra hians, existed (they no longer exist in Mono Lake⁴⁴) in these lakes was confirmed by Aldrich, who found them only in Mono Lake, Soda Lakes, and the slough at Pyramid Lake for the portion of the Great Basin here under study.⁴⁵ Aldrich found that a similar species preferred the less dense and alkaline waters of Winnemucca and Walker lakes, but consumption by Indians was mentioned in the case of E. hians only.

The existence of pumice around lakes in the western Great Basin was also investigated. Russell, in inquiring into the source of the pumiceous dust composing much of the lacustrine sediments in the basin of pluvial Lake Lahontan, reasoned that the only close sources for such deposits were the craters forming Soda Lakes, Mono Craters immediately south of Mono Lake, and some other volcanic areas not in the

study area.⁴⁶ Chemical and optical analysis convinced Russell that the pumiceous surface deposits and exposed strata about Mono Lake were of the same material as that which formed the Lahontan sediments, and that the materials forming the Soda Lakes craters were entirely different; thus Russell concluded Mono Craters were the source of the pumiceous sediments of the Lahontan basin. Russell made no mention of surficial pumice deposits anywhere in the western Great Basin other than at Mono Lake.

The existence of pumice around Mono Lake is well documented, and although the area covered by the pumice is very large, Mono Lake is the only large lake in the vicinity.⁴⁷ Though Russell's monograph on Lahontan implied there were no other pumice sites in the area, the matter was investigated further by locating pumice mines in the study area, even though this procedure did not differentiate between surface and subsurface deposits.⁴⁸ No deposits were found in the vicinity of any large lakes other than Mono Lake in the western Great Basin of Nevada and California.

The evidence seems quite conclusive. Walker's route took him to Mono Lake.

The Inter-Canyon Ridge. The location of the west-trending ridge flanked by two precipitous canyons, which was traversed by Walker's party has posed less of a problem to previous interpreters, with Watson, Fletcher, and Farquhar

clearly concluding this ridge to be the one between the Tuolumne and Merced rivers, as previously noted. The identifying characteristic of the described ridge is the existence of precipitous canyons which must have been reasonably close to each other (on the order of twenty-five kilometers, perhaps).⁴⁹ The distribution of Big Trees (Sequoiadendron giganteum) was considered as a differentiating characteristic, but this distribution eliminated only one of the six major inter-canyon ridges extending to the San Joaquin Valley, the ridge north of the Tuolumne drainage (Map).

Westward-trending ridges in the Sierra Nevada are somewhat typical of the portion of the range north of the Merced River, but the Tuolumne-Merced divide is the best representative in this respect (Map). The most awe-inspiring canyons of the Sierra Nevada flanking the San Joaquin Valley are those of the Tuolumne, Merced, and Kings rivers, but that of the Kings River has no other exceptional canyon near it, and is much too far south from the point of Walker's ascent in the neighborhood of Mono Lake. It is also to be noted that the Tuolumne and Merced Rivers are generally no more than about twenty-five kilometers apart in the middle and higher elevations of the Sierra Nevada, where their majestic valleys are formed. This distance is not approached in any other pair of canyons.

The evidence above suggests that the Tuolumne-Merced divide was the ridge traversed by Walker's party, but because

of the highly subjective quality of the topographic features described by Leonard, an attempt was made to ascertain whether any features described by Leonard were absent from the Tuolumne-Merced divide. As implied above, Big Trees were present and conveniently located for discovery by a large party traversing the ridge (Map). Leonard's description of their descent along the ridge also suggested a somewhat bench-like character to the ridge on its west-facing slope.⁵⁰ Wahrhaftig and Bateman demonstrated that just such a topography is characteristic of the Sierra Nevada south of the Tuolumne River.⁵¹ This includes the Tuolumne-Merced divide.

Leonard also related securing a basket of huge acorns dropped by an Indian whom they had frightened, and who "had them on his back traveling as though he were on a journey across the mountain, to the east side."⁵² Stewart and Bennyhoff have discussed characteristics of the considerable trade occurring between the Miwok peoples of Yosemite Valley, and the Paiute of Mono Lake.⁵³ A major portion of the trail utilized was along the Tuolumne-Merced divide, and the major pass over the Sierra Nevada summit was at Bloody Canyon about eight kilometers southwest of Mono Lake (Map). One of the common items of trade was acorns. The existence of a major pass near Mono Lake is also noted to be in keeping with the conclusion that Walker saw Mono Lake, because it was within a day's travel along the mountain from the lake described

that the trail to the west was found.⁵⁴ Leonard's suggestion that horses had traveled the trail cannot be verified in the anthropological literature, but that horses were capable of crossing the pass is well-known.⁵⁵

Leonard's description of the terrain encountered from the eastern summit to the point where the inter-canyon ridge was encountered fits well the area about the upper extremes of the Tuolumne River, as does Joe Meek's possibly embellished description, which was mentioned earlier.⁵⁶ As Leonard indicates, the area about Bloody Canyon is barren of vegetation; this area is one of only two zones essentially devoid of vegetation in the High Sierra, the other being further south.⁵⁷ Other vegetation zones also seem to correspond well to Leonard's descriptions. In addition, descriptions of the area by others do not contradict Leonard's description, which in general gives the impression of being surrounded by rugged peaks for the first three days.⁵⁸

Although the evidence above is somewhat circumstantial, a crossing by way of the Tuolumne-Merced divide seems to be easily supportable. Having noted that the majority of previous workers are in agreement, I have concluded that Walker crossed along the ridge between the Tuolumne and Merced Rivers.

Refining the Reconstruction

Four major locales have now been determined along

Walker's route: Humboldt Sink, Mono Lake, the ridge between the Tuolumne and Merced Rivers, and the plains of the San Joaquin Valley between the above rivers. It remains to fill in a few more landmarks between these points (refer to Map).

There have been many changes to the hydrographic features of the Carson Desert over the years since 1833, both man-made and naturally occurring.⁵⁹ The descriptions of the terminus of the Humboldt given by Hague and Emmons, by Ridgway and by Kern, correspond well to Leonard's descriptions.⁶⁰ Thus, it is concluded that the physical description of the lakes given by Leonard is that of the terminus of the Humboldt river near the western extreme of Carson Sink. It is also concluded that Walker's party encountered Soda Lakes, and that these were the source of Leonard's first reference to the E. hians larvae.⁶¹ Walker's party next crossed the Carson River, which according to earliest records, was flowing only into the Carson Lake at the time.

Walker then passed by Carson Lake on the west side, around the east end of the Desert, probably heading for the Wassuk Range which was in view, and encountered Walker Lake and River. That Walker saw this lake at least once on his trip seems certain because on his next trip through the region in 1843 with the Childs party, he planned in advance to rendezvous with a portion of the party at the lake; in addition Walker himself apparently claimed to have crossed from

Carson Lake "...over the mountain to Walker's river and lake..."⁶² From here Walker continued to Mono Lake, and I think it likely that Leonard simply confused Walker and Mono Lakes in his narrative, giving a description combining the physical characteristics of Mono Lake with Walker Lake's proximity to the Carson Desert.

Two possible routes from Walker Lake to Mono Lake are evident. Walker could have passed up Walker River, along the east fork, and over the east margin of Bodie Hills to the Mono basin. Alternatively, he could have passed east of Walker Lake, to the south through Whisky Flat, and across the Anchorite Hills to the Mono basin, following a well-traveled Indian route.⁶³ Leonard's meager description of the party's condition and of the terrain traversed, given after arriving at what I have concluded to have been Mono Lake, would favor the latter route.

Evidence suggests that Mono Pass at the head of Bloody Canyon was very heavily traveled by the Indians of Mono Lake, as previously mentioned. Thus it is most probable that the trail leading up Rush and Walker creeks to Mono Pass was the one followed by Walker. From Mono Pass the most likely route is down the Dana Fork of the Tuolumne River into Tuolumne Meadows. It may be argued that travel along this route should have been easier than Leonard described, but I believe that the physical condition of the party would

probably have made any route difficult. In addition, the snow pack could very likely have been much heavier in 1833 than it is now, if interpretations of glacial size and history are correct.⁶⁴

From Tuolumne Meadows Walker's party probably attempted in vain a descent into the canyon of the Tuolumne, and then began following the ridge between the Tuolumne and Merced rivers. A descent into the canyon of the Merced was also likely attempted when the existence of a valley was discovered. It is quite likely that Walker's party followed the old Indian and stock trail along this ridge, passing through the Merced Grove (or possibly the Tuolumne Grove) of Big Trees, and down Bull Creek, as Walker is alleged to have stated.⁶⁵ Walker probably followed close to the Merced River from here, the description of the river given by Leonard probably fitting the Merced slightly better than the Tuolumne River, and in addition the Bull Creek drainage would have led quickly to the Merced River. This interpretation is also more in accordance with the previously mentioned campsite near the mouth of the Tuolumne River during the November 12, 1833 meteor shower. Thus Walker's party would have followed down the Merced River, along the San Joaquin River, and eventually out to the Pacific Coast.

IV. CONCLUSION

The route of the Walker expedition given above corresponds more closely to the information provided by the two major sources (Joseph Walker and Zenas Leonard) than any previous interpretation. I believe it is also the result of the most systematic attempt, and is the closest to being correct.

Leonard described the use of crude pottery by the Paiute in the vicinity of what I believe to be present-day Humboldt Slough on the western border of Carson Sink, or possibly in the vicinity nearer to Carson Lake.⁶⁶ Stewart previously concluded this pottery description referred to the Paiute near Mono Lake.⁶⁷ Should this interpretation of Walker's route be accepted by anthropologists, along with the basic veracity of Leonard's narrative, a contribution to the ethnography of the Northern Paiute might be achieved, establishing the use of pottery by the Paiute of the Humboldt or Carson Sinks.

FOOTNOTES

1. For example, a description of pottery usage given by a member of Walker's party was associated with the Paiute of Mono Lake, California by O. C. Stewart, "Culture Element Distributions: XIV Northern Paiute," University of California Anthropological Record, Vol. 4 No. 3 (1941), p. 338. The route interpretation presently developed conflicts with the above assertion.
2. D. S. Watson, West Wind. The Life Story of Joseph Reddelford Walker, Knight of the Golden Horseshoe (Los Angeles: privately printed by Percy Booth, 1934), pp. 20-21.
3. W. Irving, The Adventures of Captain Bonneville, U. S. A., in the Rocky Mountains and the Far West, ed. E. W. Todd (Norman: University of Oklahoma Press, 1961), pp. xxxii-xxiv.
4. Irving, op. cit., footnote 3, p. 281.
5. Zenas Leonard provided his own account, Z. Leonard, Adventures of Zenas Leonard, Fur Trader, ed. J. C. Ewers (Norman: University of Oklahoma Press, 1959), pp. 63-133; originally published as Narrative of the Adventures of Zenas Leonard, a native of Clearfield County, Pa., who spent five years in trapping for furs, trading with the Indians, etc. etc., of the Rocky Mountains. Written by Himself (Clearfield, Pa.: D. W. Moore, 1839). Joseph Meek's account was given by F. F. Victor, The River of the West (Hartford, Conn., and Toledo, O.: R. W. Bliss & Co., 1870), pp. 143-53. Stephen Meek's account was given in "Battle of the Fur Traders with the Indians near the Rocky Mountains," Niles Weekly Register, Vol. 52, 25 March 1837, p. 50; also in his autobiography, S. H. Meek, The Autobiography of a Mountain Man 1805-1889 (Pasadena: Glen Dawson, 1948), pp. 5-6. George Nidever also left his own account, G. Nidever, The Life and Adventures of George Nidever 1802-1883, ed. W. H. Ellison (Berkeley: University of California Press, 1937), pp. 32-34. Interviews with Joseph Walker were the basis for information contained in obituaries published in The Pioneer (San Jose, Calif.), 1 September 1877; also in The Sonoma Democrat, 25 November 1876. William Craig's account was given by T. J. Beall, "Recollections of Wm. Craig," Lewiston Morning Tribune, 3 March 1918, p. 8.
6. H. H. Bancroft, California III, 1825-1840, Vol. 20 of The Works of Hubert Howe Bancroft (San Francisco: A. L. Bancroft & Co., 1885), pp. 390-91.

7. H. M. Chittenden, The American Fur Trade of the Far West, ed. S. Vinton (New York: Rufus Rockwell Wilson, Inc., 1936), Vol. 1, pp. 412-13, 416.
8. F. F. Victor, op. cit., footnote 5, pp. 147-48.
9. D. S. Watson, op. cit., footnote 2, pp. 55-58.
10. F. N. Fletcher, "The Trappers and Explorers of the Great Basin," Nevada Historical Society Papers 1917-1920 (1920), pp. 225-28; F. N. Fletcher, Early Nevada, the Period of Exploration 1776-1848 (Reno: A. Carlisle & Co., 1929), pp. 82-84.
11. W. M. Maule, A Contribution to the Geographic and Economic History of the Carson, Walker, and Mono Basins in Nevada and California (San Francisco: U. S. Forest Service, 1938), pp. 16, 48, 50-51.
12. F. P. Farquhar, "Exploration of the Sierra Nevada," California Historical Society Quarterly, Vol. 4, No. 1 (March 1925), pp. 6-7; F. P. Farquhar, "Walker's Discovery of Yosemite," Sierra Club Bulletin, Vol. 27, No. 4 (1942), pp. 37-46; F. P. Farquhar, History of the Sierra Nevada (Berkeley and Los Angeles: University of California Press in collaboration with Sierra Club, 1966), pp. 32-38.
13. Refer to footnote 5.
14. Z. Leonard, op. cit., footnote 5, pp. xvii-xxix.
15. S. Meek (1948), op. cit., footnote 5, p. 5.
16. G. Nidever, op. cit., footnote 5, p. 34.
17. F. F. Victor, op. cit., footnote 5, p. 148.
18. F. F. Victor, op. cit., footnote 5, p. 149.
19. The Sonoma Democrat op. cit., footnote 5; The Pioneer, op. cit., footnote 5; H. H. Bancroft, op. cit., footnote 6, footnote on p. 391.
20. Z. Leonard, op. cit., footnote 5, p. 90 and footnote.
21. Archives of San Jose (Spanish MS, University of California at Berkeley, Bancroft Library, H. H. Bancroft Collection), Vol. 5, pp. 27-28.
22. Z. Leonard, op. cit., footnote 5, p. 87.

23. Z. Leonard, op. cit., footnote 5, pp. 96-97.
24. L. H. Bunnell, Discovery of the Yosemite and the Indian War of 1851 Which Led to that Event, 4th ed. (Los Angeles: G. W. Gerlicher, 1911), p. 39 and footnote on p. 78.
25. J. C. Fremont, The Expeditions of John Charles Fremont, Vol. 1, ed. D. Jackson and M. L. Spence (Urbana Chicago, and London: University of Illinois Press, 1970), p. 506; originally published in 1845.
26. Z. Leonard, op. cit., footnote 5, pp. 73, 76.
27. J. C. Fremont, op. cit., footnote 25, p. 609. The event Walker recalled for Fremont was probably in connection with Walker's travels with the Childs party in 1843, as given in The Sonoma Democrat, op. cit., footnote 5.
28. J. C. Fremont, op. cit., footnote 25, p. 622.
29. L. H. Bunnell, op. cit., footnote 24, pp. 38-40.
30. F. P. Farquhar (1966), op. cit., footnote 12, illustration on p. 35.
31. Z. Leonard, op. cit., footnote 5, pp. 65, 69, 82. W. Irving, op. cit., footnote 4.
32. Z. Leonard, op. cit., footnote 5, pp. 69-73.
33. Z. Leonard, op. cit., footnote 5, pp. 73-75.
34. Z. Leonard, op. cit., footnote 5, pp. 75-84.
35. Z. Leonard, op. cit., footnote 5, pp. 84-87.
36. F. P. Farquhar (1942), op. cit., footnote 12, p. 39.
37. A. Hague and S. F. Emmons, Descriptive Geology, Vol. 2 of Report of the Exploration of the Fortieth Parallel, Professional Papers of the Engineer Department, U. S. Army, No. 18, comp. C. King, 7 vols. (Washington: Government Printing Office, 1877), pp. 742-750; I. C. Russell, Geological History of Lake Lahontan, A Quarternary Lake of Northwestern Nevada, Monographs of the United States Geological Survey Vol. 11 (Washington: Government Printing Office, 1885), pp. 44-45, 55-86; I. C. Russell, Quarternary History of Mono Valley,

- California, Eighth Annual Report of the States Geological Survey 1886-'87 (Washington: Government Printing Office, 1889), p. 287.
38. I. C. Russell (1885), op. cit., footnote 37, Table C facing p. 176; I. C. Russell (1889), op. cit., footnote 37, p. 294.
 39. Z. Leonard, op. cit., footnote 5, pp. 73-74.
 40. M. Twain [Samuel Clemens] , Roughing It (New York and London: Harper and Brothers Publishers, 1913), Vol. 1, pp. 259-260; first published in 1872. Other accounts are given by J. Le Conte, "On the Extinct Volcanoes about Mono Lake, and their Relation to the Glacial Drift," American Journal of Science and Arts (Third Series), Vol. 18, No. 103 (July 1879), p. 36; and by J. D. Whitney, Geology (Philadelphia: Caxton Press of Sherman & Co. by authority of the Legislature of California, 1865), Vol. 1, p. 452 (Vol. 1 was the only volume published).
 41. Z. Leonard, op. cit., footnote 5, pp. 73,76.
 42. J. H. Stewart, "Ethnography of the Owens Valley Paiute," University of California Publications in American Archaeology and Ethnology, Vol. 33 (1934), pp. 256-57. See also D. C. Stewart, op. cit., footnote 1, pp. 373, 427; E. L. Davis, "An Ethnography of the Kuzedika Paiute of Mono Lake, Mono County, California," Miscellaneous Paper No. 8 in University of Utah Anthropological Papers, No. 75 (June 1965), pp. 12, 21; R. F. Heizer, "Kutsavi, a Great Basin Indian Food," Kroeber Anthropological Society Papers, No. 2 (1950), pp. 35-41. Others noting this phenomena outside anthropological circles are W. H. Brewer, Up and Down California in 1860-1864. The Journal of William H. Brewer Professor of Agriculture in the Sheffield Scientific School from 1864 to 1903, 3rd ed., ed. F. P. Farquhar (Berkeley and Los Angeles: University of California Press, 1966), p. 417; M. Twain, op. cit., footnote 40, pp. 261-262; J. D. Whitney, op. cit., footnote 40, pp. 453-54.
 43. D. C. Stewart, op. cit., footnote 1, footnote on p. 427.
 44. E. L. Davis, op. cit., footnote 40, p. 33, 40.
 45. J. M. Aldrich, "The Biology of Some Western Species of the Dipterous Genus Ephydra," Journal of the New York Entomological Society, Vol. 20, No. 2 (June 1912), p. 77.

46. I. C. Russell (1885), op. cit., footnote 37, pp. 146-49. Another possible source, a crater near Stillwater, Nevada, was noted by R. B. Morrison, Lake Lahontan: Geology of the Southern Carson Desert, Nevada, Geological Survey Professional Paper 401 (Washington: Government Printing Office, 1964), p. 95; however, no ejecta were observed in the vicinity of this crater.
47. I. C. Russell (1889), op. cit., footnote 37, p. 276; W. H. Brewer, op. cit., footnote 42, p. 416; J. D. Whitney, op. cit., footnote 40, p. 454; J. Le Conte, op. cit., footnote 40, p. 39; C. D. Rinehart and N. K. Huber, "The Inyo Crater Lakes--A Blast in the Past," Mineral Information Service, California Division of Mines and Geology, Vol. 18, No. 9 (September 1965), p. 169; P. C. Bateman and C. Wahrhaftig, "Geology of the Sierra Nevada," in Geology at Northern California, California Division of Mines and Geology Bulletin 190, ed. E. H. Bailey (San Francisco: n.p., 1966), p. 142.
48. K. G. Papke, "Industrial Mineral Deposits of Nevada," Nevada Bureau of Mines and Geology Map 46 (1973); C. W. Chesterman, "Pumice, Pumicite, and Volcanic Cinders in California," California Division of Mines and Geology Bulletin 174 (San Francisco, n.p., 1956), Plate 1.
49. Z. Leonard, op. cit., footnote 5, p. 79.
50. Z. Leonard, op. cit., footnote 5, pp. 81-83.
51. P. C. Bateman and C. Wahrhaftig, op. cit., footnote 47, pp. 151 (map), 152.
52. Z. Leonard, op. cit., footnote 5, p. 80.
53. J. A. Bennyhoff, "An Appraisal of the Archaeological Resources of Yosemite National Park," University of California Archaeological Survey Reports, No. 34 (1956), pp. 23-24; J. H. Steward, op. cit., footnote 42, pp. 257, 325 (Map 1), 329.
54. Z. Leonard, op. cit., footnote 5, p. 75.
55. W. H. Brewer, op. cit., footnote 42, pp. 415-16.
56. Z. Leonard, op. cit., footnote 5, pp. 75-79; F. F. Victor, op. cit., footnote 5, p. 148.
57. H. A. Jensen, "A System for Classifying Vegetation in California," California Fish and Game, Vol. 33, No. 4

(October 31, 1947), map facing p. 200.

58. W. H. Brewer, op. cit., footnote 42, pp. 406-416; J. D. Whitney, op. cit., footnote 40, pp. 427-436; I. C. Russell (1889), op. cit., footnote 37, pp. 280-282.
59. I. C. Russell (1885), op. cit., footnote 37, pp. 44-45. Also found in R. B. Morrison, op. cit., footnote 46, pp. 104-105.
60. A. Hague and S. F. Emmons, op. cit., footnote 37, p. 742; R. Ridgway, Ornithology, Vol. 4 of C. King, op. cit., footnote 37, p. 353; E. M. Kern, "Journal of Mr. Edward M. Kern of an Exploration of Mary's or Humboldt River, Carson Lake, and Owens River and Lake, in 1845," Appendix Q of 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, J. H. Simpson, (Washington: Government Printing Office, 1876), pp. 478-79; Z. Leonard, op. cit., footnote 5, p. 73.
61. It is possible that the lake formerly occurring at the terminus of Humboldt River on the western border of Carson Sink supported E. hians prior to the freshening of the lake in 1862 by the re-occupation of a channel of the Carson River (footnote 59). However, Stewart's informants, from the tribe inhabiting the Humboldt Sink, denied ever using or obtaining "cutsavi" (O. C. Stewart, op. cit., footnote 1, p. 373).
62. The Sonoma Democrat, op. cit., footnote 5.
63. J. H. Steward, op. cit., footnote 42, pp. 325 (Map 1), p. 329.
64. P. C. Bateman and C. Wahrhaftig, op. cit., footnote 47, p. 159.
65. L. H. Bunnell, op. cit., footnote 24, p. 39.
66. Z. Leonard, op. cit., footnote 5, pp. 84-85.
67. O. C. Stewart, op. cit., footnote 1.

APPENDIX

HUMBOLDT SINK, NEVADA,
TO SAN JOAQUIN RIVER, CALIFORNIA

September 4, arrived at some lakes, supposed them to be the sink; low swampy country, fine grass; encountered plenty of Indians, one had a beaver skin...Last lake in the chain is the largest, stagnant, green scum; fly larvae inhabits lake, blown onto shore in quantity by wind; fly larvae gathered by Indians in willow baskets, dried for winter provender...Indians small, weak, and hairy; subsist upon grass-seed, frogs, fish (scarce); fish speared with a kind of bone hook; habitations formed of a round hole in ground covered with sticks, grass, and earth; cook in a pot made of stiff mud, falls apart after cooking a few times because of sandy nature of mud...October 10, built rafts of rushes in crossed river, leaving these Indians going toward large mountain in sight, snow on summit; encamped that evening at large lake formed by river which heads in this mountain; lake has no outlet for water, which is similar to lie, and tastes much like pearlash, would be of inestimable value if near large city, as it is admirably calculated to wash clothes without soap; pumice stone abun-

SOURCE: Extracted and paraphrased from Zenas Leonard, Adventures of Zenas Leonard, Fur Trader, edited by John C. Ewers (Norman: University of Oklahoma Press, 1959), pp. 69-87.

dant on lake surface and shore...Next day traveled up river toward the mountain, which is very high, as snow extends down side nearly half way; mountain runs north and south... Next morning hunters found no sign of game, or practicable pass; secured a colt and bag of fly larvae from natives... Today found an Indian path...Next morning found that horses traveled path, and thus it must come from the west...Next morning started ascent, very difficult because of rocks and steepness, encamped on side of mountain...October 16, arrived at what we took for the top; top covered with deep snow; peaks covered with rocks and sand, incapable of vegetation except on south side where grows a kind of shrub... Next day made but poor; snow drifted from peaks in some ravines probably never melts...Next morning we continued, occasionally crossed an Indian path, encountered hills, rocks, deep snow; encamped at small lake with a small quantity of grass; still no sign of game or opposite side of mountain...Next morning found less snow, more timber, a few small lakes, prospect of getting into a country that produced some kind of vegetation; timber is a scrubby and knotty cedar, pine, and redwood; encamped at another small lake with some pasture...We had traveled for five days since we arrived at what we supposed to be the summit and were now still surrounded with snow and rugged peaks; traveled a few miles every day still on top of the

mountain, our course continually obstructed with snow, hills, and rocks; began to encounter small streams shooting out from under snowbanks, running in deep chasms, then precipitating themselves from one lofty precipice to another, until exhausted in rain below; some of these precipices appeared to be more than a mile high; unable to descend one of these precipices to the valley below, we were obliged to keep along the top of the dividing ridge between two of these chasms which seemed to lead nearly in the direction we were going, which was west, supposing the mountain to run north and south... We continued in this manner until the 25th when we frightened an Indian who dropped a basket full of very large acorns...Next morning we continued still finding snow in abundance, but less rocks; in two or three days arrived at the brink of the mountain, which was so near perpendicular that descent would be folly...Next morning followed a pass or Indian trail, descending with great difficulty, taking a zigzag direction until we arrived at a ledge of rocks of great height extending eight or ten miles along the mountain, which we were forced to descend with ropes; killed several deer and a bear...There was now little snow, timber was larger and better, soil more fertile; found some trees of the redwood species, incredibly large, some of which would measure from sixteen to eighteen fathom

around the trunk at the height of a man's head from the ground...In the evening of the 30th we arrived at the base of this mountain...On the 31st we pursued our western course toward the plain; reached the margin of the woods in the afternoon; deer and bear astonishingly abundant...The following morning we traveled across the plain, came to a large river heading in the mountain, which formed very high banks even in smooth parts of the country; but when flowing through rocks, the rocks are sometimes piled up from a quarter to a half mile high nearly perpendicular, and the water forces its way tossing, pitching, and foaming, then spreads out in a beautiful bay until it reaches the next rapids...In this country the land is generally smooth and level and the plains are very extensive; a number of beautiful rivers, all heading in this rugged mountain, run parallel with each other through the plain, also to the west; these plains are in many places swarming with wild horses... We continued traveling down the river until we arrived at five Indian huts on the 7th of November, where we traded for some horses which were marked with a Spanish brand.