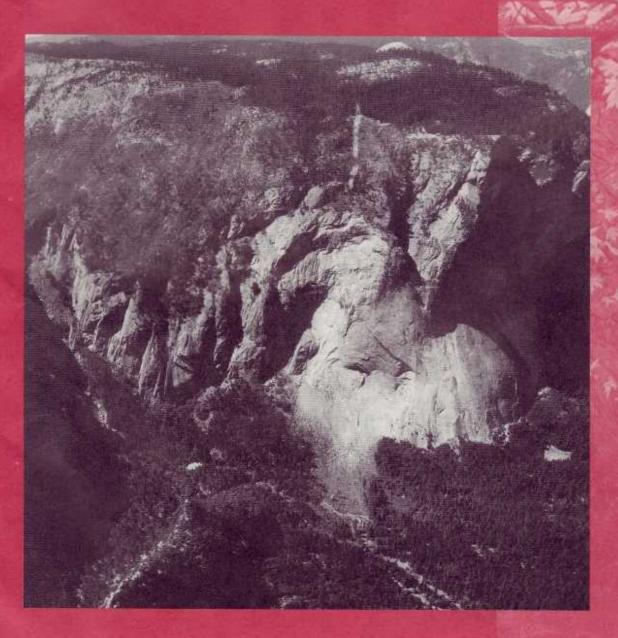


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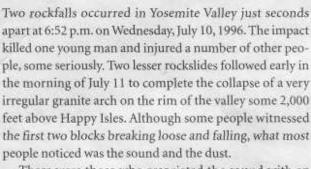
Volume 58

Numberd

The Ground Shook and the Sky Fell

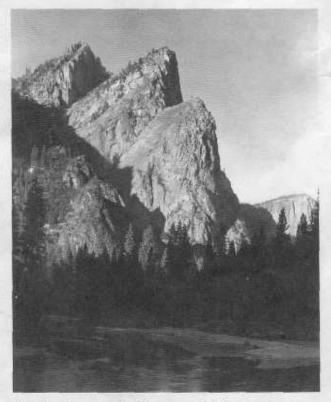


THE GROUND SHOOK AND THE SKY FELL



There were those who associated the sound with an earthquake. Yosemite's Deputy Superintendent Hal Grovert was out for a run when he thought he heard thunder, although it seemed awfully close. Others likened the sound to low flying jet aircraft. Trail worker Ernie Milan was jogging up the Vernal Falls trail just across from Happy Isles when he became aware of what he took to be the loud engine of a very large jet, close overhead, about to crash. "It felt like an earthquake and sounded like cannon-fire," Florida visitor Bill Leavengood reported. "There were two big booms, then the cloud started forming."

Then came the dust. Ernie checked his watch as he took cover around a cliff and noted, "The lights went out

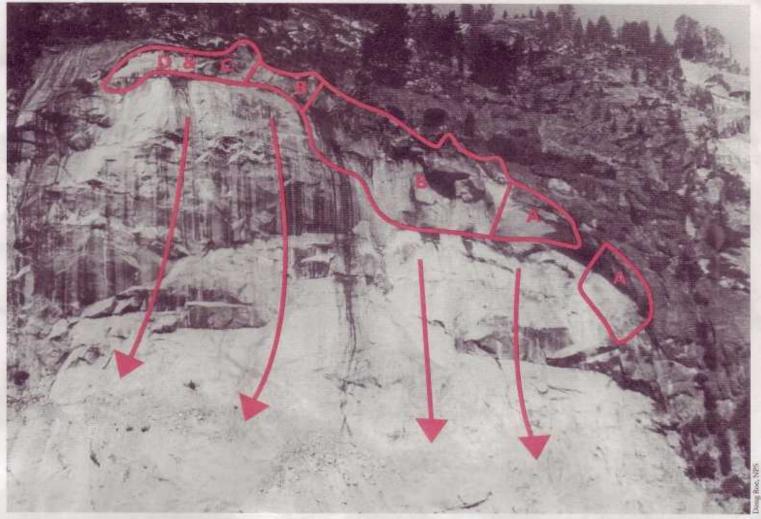


The Three Brothers, site of a major rockslide in 1987.

at 6:54 p.m." The dust came quickly, "like a tornado" according to one visitor, enveloping Happy Isles, the nearby trails, and much of Upper Pines Campground. Camper Roger Johnson saw the dust as "a solid wall, a boiling wall of gray." "It turned black, you could not see anything," Gisele Rue recalled. The dust hung in the air around Happy Isles for hours afterwards, limiting visibility and hampering search and rescue efforts. Searcher John Brenner of the Sacramento Fire Department said, "It's like being in a dust storm and searching for a needle in a haystack."

A typical rockslide in Yosemite Valley has a much different sound. Certainly there can be a kind of thunder in the large ones, but in the process of falling, the rocks quickly break up into a very loud clatter as the initial fall becomes hundreds if not thousands of slides down the walls into the waiting talus. Ranger Phil Hibbs and I happened to be standing almost directly under the largest rockfall in recent memory, one that started on Middle Brother Rock on March 10, 1987. We had been looking for the source of small rocks falling from the wall when a large part of the cliff face collapsed. As it separated from the crag, the block itself broke up into huge, three-dimensional parallelograms formed by the internal jointing of the rock, the cliff unfolding like the stairs of an escalator. These blocks hit the ledges below at different rates, creating many distinct crashes within the roar of the overall slide. The ledges funnelled the descending debris down other rock faces to the talus cone at Rocky Point. The sound of the rock breaking up and bouncing off granite was hardly unified, and quite unlike the sound of a jet. The one slide became many, and the sounds of each were distinct but joined. The Middle Brother slide was characterized by not just one sound, but by many, starting loud and slowly tapering off as the much-broken mass settled.

Likewise, the two dust clouds from the Middle Brother slides (totalling nearly a million and a half tons) were bigger than the cloud from the Happy Isles slide, Hibbs and I watched the granite cascade, dust billowing as rocks were ground and smashed into smaller pieces, especially on impact with the old talus at the cliff's foot. We were able to see the rocks reach the talus, but very soon the dust cloud, turned by the angle of the talus and floor of the valley, moved quickly toward us, enveloping us at our vantage point in Leidig Meadow just beyond the fall line—the line beyond which no large rockfall had passed. There were very small chips shooting by us on a flat tra-



This photograph shows the release point of the rockfall. The lines recreate rock formations as they existed before the fall. The letters A, B, C, D show the sequence and falling direction of each rock section. A fell first, B caused the air blast, C and D followed later in the night.

jectory, fragments resulting from impacts of larger rocks on one another near the foot of the talus. The rockfall gave the dust force, driving it away from the cliff face. The dust did not hit hard, but rather drifted out and then up, creating a cloud that rose to fill the valley. While we could not see very far, perhaps a few feet, the light of day remained. Although this was a bigger fall with a larger cloud, the dust was not as dense or as fast-moving as that of the Happy Isles slide.

What was it about the Happy Isles rockfall that caused these differences in sound and dust levels? In looking at it from the air, we discovered that there was no new rock beyond the historic fall line some 500 feet southwest of the Happy Isles Nature Center. To understand this unusual fact, we decided to look at the slide's release point and the sequence of the collapse.

The area from which the rockfall came lies at the wooded lip of Yosemite Valley's rim. Several photographs of the failed arch-like structure exist. The arch hung on a vertical face with a high elevation of 6,600 feet, some 2,000 feet southeast and 800 feet below Glacier Point. The

rock fell from the edge of the valley rim, just below the pine and live oak forest there. The release occurred at or very near the boundary between two plutons, rock intrusions composed one of Granodiorite of Kuna Crest, the other of Half Dome Granodiorite. This juncture may have affected long term erosion processes, helping create the arched structure and contributing to its eventual failure.

The arch, a structure formed by exfoliation and other forces, was about 500 feet long.⁵ Erosion along the joints forming the arch had already led to much of its collapse. It once had been a huge plate, 200 or more feet high, but most of its southern two-thirds had already fallen to form the talus cone (on part of which the road to the valley water tank was built) against the cliff south of Happy Isles. A large prehistoric rockslide most likely came from this arch. Another, smaller fall occurred August 2, 1938, adding to the talus cone, creating noise and dust, but causing no damage.⁶ This rockslide, noted as a curiosity, occurred because the exfoliated mass had been entirely undercut by long-term erosion. Water flowed in several

The dust cloud was heavy with fresh, sharp material that abraded many of the trees going down in front of it. The bark was stripped from trees facing the impact for nearly 300 feet out from the impact area.

streams underneath the rock mass, as it does today, weathering the joints there.

A solid stand of pine and live oak trees grew along a strong vertical joint defining the back side of the arch, and roots up to eight inches in diameter had been put down into the eroding joint, turning rock into soil and slowly wedging the granite apart. The most eroded part of the arch was its high point, roughly its center, where there was more cross-jointing and an additional weakness caused by a thinly layered intrusion. This was the area of the arch in which there was more soil and more brown, weathered rock than in any other. It seemed the most vulnerable part of the arch perhaps because the small intermittent drainage flowed above and below ground there, supporting the largest trees on the rim's edge.

But it was not the center of the arch that started the collapse. The massive north wing of the arch gave way first. Park Service Interpreter Geoff Green saw two blocks, within several seconds of each other, falling from the rim.



This aerial view shows the ramp along which the rocks slid before freefalling.

The seismic record confirms the impact of two blocks. Though not really comparable because rockfall produces different shock waves than do earthquakes, the impact registered roughly 2.1 on the Richter scale. Mathematical refinement of the seismic record at the UC Berkeley Seismographic Station showed two impacts about four-teen seconds apart, the second roughly four times greater than the first.⁷

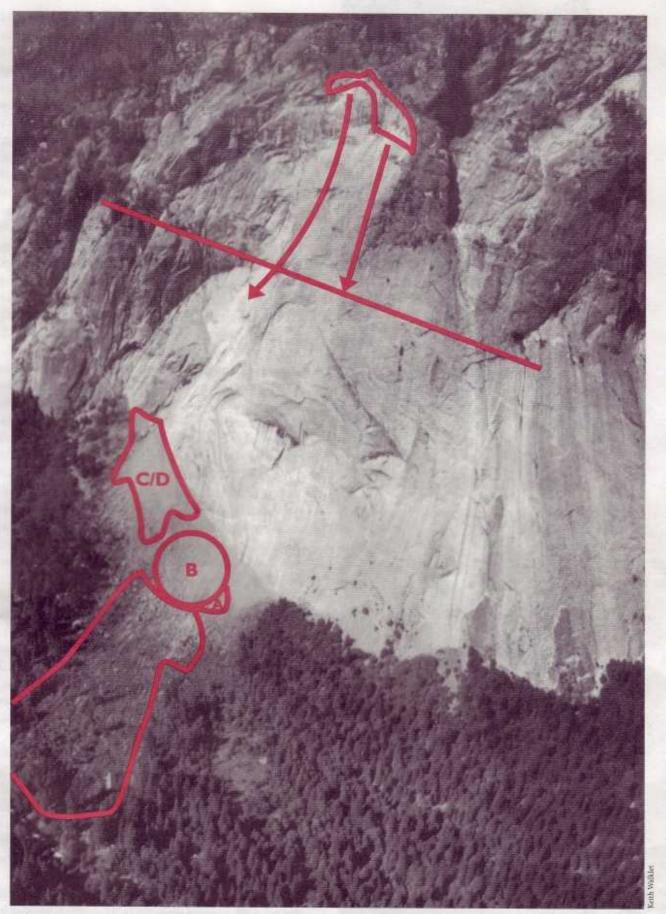
The first block was smaller, consisting of perhaps 15 to 20 percent of the massive north wing of the arch, and caused a separate outlier slab, a 2,000 ton remnant of past exfoliations, to break free. This failure at the north edge of the arch precipitated the almost immediate collapse of the rest. The area up to the arch center—that most weathered, jointed area through which the main drainage ran—fell with the second rockfall. The sequence is registered in the slightly offset impact areas at the foot of the cliff. A low ridge of freshly crushed and broken rock at the northernmost point of the slide intrudes into the existing drainage through talus west of the Happy Isles fen. A much larger hill, representing the second fall, overlaps it.

We saw the release point up close from a helicopter the evening of July 10, and there was a considerable amount of rock hanging out away from the cliff at the arch center. By 4:45 a.m. the next morning it was gone. Our examination that morning showed the collapse of the remainder of the arch to the south and the slippage of material from the drainage at the former arch center where there had been some taller pines and live oaks growing.

Although it can only be a rough estimate because no one was able to measure accurately the size of the failed blocks, approximately 78,000 cubic yards of material weighing about 80,000 tons fell in total. The first two slides on July 10 carried the massive north wing of the arch, accounting for approximately 68,000 of the 80,000 tons of the rockfall sequence, or about 85 percent of the whole. The following morning, the last two brought down the more fragile and graceful south wing of the arch.

A look at the character of the cliff below the release point is also important for an understanding of the unusual impacts on the valley floor. At 6,600 feet, the long arch lay near the top edge of a massive block which itself had been partially separated from the Glacier Point mass by earlier glaciation and long periods of drainage across the Glacier Point apron. From the air that block is distinctive, standing out from the northern cliff face while defining part of the east-facing cliff. The northern end of the block is more weathered than the cliff below it and has considerable vegetation growing in its joints down to a level of about 5,800 feet. At that elevation there is a discrete break in the cliff as well as a distinct change in the character of the granite.

The 5,800-foot line marks the approximate level of the ice at the maximum extent of the Tioga glaciation some 20,000 years ago." Below it, erodable rock was cleared off by the glacial ice, and the much steeper cliff is clean, mas-



This aerial view shows the entire rockslide from its release point to its impacts at the base of the cliff. Letters A through D mark the impact areas of each part of the falling arch. Below the impact area, the approximately ten-acre sweep of air blast damage is outlined. The straight diagonal line along the cliff shows the maximum extent of the Tioga glaciation.











Photographer David Walter captured the expanding dust cloud while climbing the Royal Arches



sive, and without vegetation. Above it, the rock had roughly 750,000 years to wear away through exfoliation, the work of forests, climate change, and the forces of gravity, and was slowly beveled back toward greater stability.

Weathering above and ice cleaning below that line worked to create a fairly long, steeply inclined ramp immediately below the arch. Judging from a topographic map, the ramp is about 500 feet long and drops some 400 vertical feet from the bottom of the release point. At the base of the ramp, the cliff gets much steeper. The effect on the rockfall was this: when the large slabs of the north wing of the arch broke away from their moorings they slid rather than fell down the ramp.

The slabs were so thick (probably about 30 feet) that they did not break up, remaining intact for the most part. The ramp acted as a kind of launch pad, so that when the sliding blocks approached the 5,800 foot level where the cliff became more vertical, they became airborne, falling free about 1,700 feet. Gerald Wieczorek of the U.S. Geological Survey has tentatively estimated that the blocks were travelling well over 160 miles per hour at impact. The compression of air by these great falling slabs combined with the concussion to produce the unusual massive air blast. At the same time, the breakup of the slabs upon impact created the dust cloud and gave it a force the cloud from Middle Brother never had.

The slabs hit the valley floor roughly 100 feet out from the base of the cliff. There is no new talus against the wall in the vicinity of the impact, but there are two new overlapped hillocks marking the impact of the slabs. The rockfall buried and destroyed vegetation over an area of roughly ten acres; fresh rock extended just slightly beyond the fall line defined by previous slides.

The air blast accounted for damage to trees in an additional area of approximately ten acres. Because of the moisture in the ground at the foot of the talus, most trees were simply uprooted there. A few well-rooted specimens were snapped off from twenty to forty feet up their trunks. The falling of trees and the collapse of a footbridge over the Merced caused an instantaneous drop of four inches in the level of the river, which recovered only ten minutes later. It

It seems that as they were going down, the trees were hit by the dust cloud which, loaded as it was with debris, moved more slowly than the air blast, yet carried considerable force. While the air blast resulted from compression and concussion of air by rock, the dust cloud formed as the great slab disintegrated on impact, in a kind of implosion, with the force of impact transferred to the dust and shrapnel.

The dust cloud was heavy with fresh, sharp material that abraded many of the trees going down in front of it. The bark was stripped from trees facing the impact for nearly 300 feet out from the impact area. The air blast

tore branches, leaves, and bark from trees in the impact area, carrying them about 300 feet, then burying them with sand. Small fragments of rock were embedded in the bark of trees as far out from the impact zone as 550 feet. Samples of the dust show a wide mix of grain size. The heaviest particles were dropped quickly, and only the finest grains remained airborne above Upper Pines Campground. The dust ranged from over two inches in depth near the impact area to about half an inch deep at the nature center.

The air blast and the dust cloud appear to have lost momentum rapidly along their margins and bottom, their greatest forces rising into the tops of trees by the time they reached the nature center. A sequence of photographs of the dust cloud provided by climber/photographer David Walter, shows a swift river of dust stretching from the cliff base to the nature center, where the stream turns into an explosive-like cloud, billowing finally above the trees and then slowly beginning to dissipate.

Near the impact area the air blast and dust cloud acted more like a bulldozer, knocking things over and stripping vegetation directly in its path. The impact area is about eighty feet higher than the Happy Isles Nature Center, which sits beneath a low rocky bluff about as high as its roofline. The building is also situated a little like the prow of a ship into the wave, protecting it further. By the time the blast and cloud reached Happy Isles, they had risen in their main effects and probably acted much like Mono winds have in the area of Camp 6 (the employee tent area in Yosemite Valley), whipping the tops of large trees, taking down those most vulnerable and sitting in the loosest, moistest soils, those trees knocking down others.

While rockfalls are common in Yosemite—they are an integral part of the nature of the beast—the Happy Isles slides were unusual.

Unlike the Mono winds, however, these blasts, though short in duration, were at high speeds with a heavy load. It was the air blast and billowing dirt, not the rockfall, that brought the death and injuries, made the search difficult, complicated clean up, and created so many uncertainties. The dust cloud also created a few moments of terror as people were overtaken and seemingly trapped.

Not all the rock that fell came off the ramp that carried the two large slabs. That ramp is narrow, and the cliff face to which it leads is rounded, bending back into an indentation in the wall likely produced by weathering and glacial plucking. It has been the traditional channel for rockfall from the area of the weathering arch. Bounded on the south by very steep cliffs, the channel feeds directly to the top of the existing talus cone. Prehistoric slides pushed the toe of that cone well out toward Happy Isles and contributed some of the large rocks on the western edge of the Merced River.

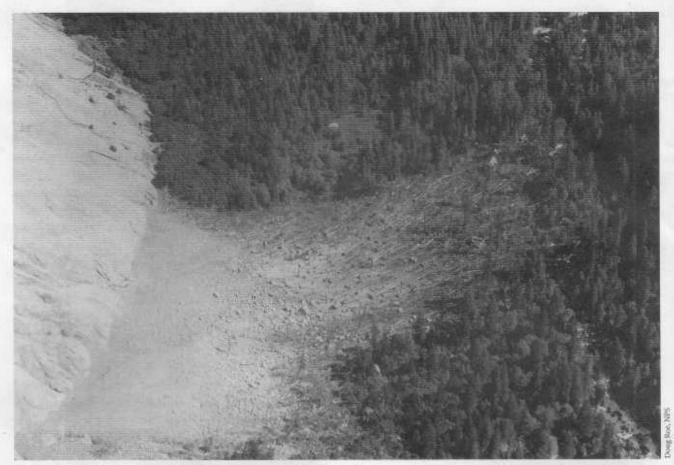
The thinner part of the weathering arch did not go down the ramp with the large slabs but instead followed this traditional channel to the talus cone. The rockfall further enlarged the channel by cracking a large block still obstructing the channel just above the cone, hastening its eventual drop to the talus. The rockfall stripped the vegetation from the top of the talus cone and knocked down a good many trees along the south margin of the impact area. Smaller rocks following in the wake of the large slabs fell closer to the cliff and along the north margin of the impact area, mangling and cutting down many oaks and pines there. What had been an oak forest at the foot of the cliff was completely denuded.

The collapse of the south wing of the arch added a foot or two to the size of the talus cone. A back blast caused by the impact of the first rockslides peeled a large but thin sheet of rock off the base of the cliff. Elsewhere, roots and stems of former vegetation are visible, having been cut down by falling smaller material, though not entirely buried. The collapse of the smaller south wing of the arch produced a rockslide more like that reported in August, 1938: dust and noise but no impact to people.

The series of rockslides left a much changed landscape between the Happy Isles Nature Center and the base of the cliffs. Many people liken the scene to the larger landscapes left in the wake of Mount St. Helens. Vegetation has been cleared, landmarks have been lost or obscured by dust and down trees, views are opened that have not existed in human memory, physical features have been rearranged, especially at the base of the cliff.

There had been a spotted owl's nest within the area of firs knocked down by the air blast. Also within the new dustscape had been what I think was Yosemite Valley's last remaining colony of mountain ladyslipper orchid, common enough nearly a century ago to be "often gathered because of its peculiar, showy flowers" but now rather hard to see. Did human gathering of the flower thin the species out, or was it the sharp increases in forest on the valley floor forcing the species to contract in area? Will the rockslides open up possibilities for its recovery?

The peregrines have already returned. They had a nest just below the arch that failed. Fortunately, their young had already fledged this year. The nest was removed by the rockslide, but within a day two peregrines were back flying the cliff. The slides may have created new places on the cliff suitable for nests. Bear and deer also entered the rockfall area very soon after the new landscape developed. Near the impact area were several small holes where



A view from the air of the new talus and the trees downed by the air blast. The Happy Isles Nature Center is visible at the upper right.

underground animals had come burrowing out through the new layer of sand. And within two weeks of the rockslide there were new ferns curling out of the dust and fresh shoots leafing out of bare, blasted stalks of big leaf maple.

There is no way to tell just what precipitated this rockfall or why the last support failed when it did, but a number of factors surely contributed. Vegetation worked on rock joints and fractures by extending roots and assisting in soil formation. Earthquakes jarred the cliffs, and rocks adjusted their positions slightly, contributing to eventual failure. Water was a key factor, expanding in cracks as ice, weathering the rocks as chemical agent, and reducing friction as fluid.

Rockfalls occur most frequently during the fall and spring, when there is more precipitation and when there are wider fluctuations of temperatures, causing freezing and thawing. Because it happened in mid-summer, the Happy Isles rockfall did not fit the pattern, and neither did its 1938 predecessor. The best explanation is that a combination of circumstances ultimately precipitated a failure, which then set off a chain reaction around the initial release, causing instability and affecting other weak rock structures on the slides' routes down. Happy Isles reminded us that such natural events can happen at any time. Predictability is necessarily limited.

There is more work to be done to understand the

rockslides. The mechanics of the air blast are not fully understood, but may be clarified by USGS studies and aerial photographs of the area. The history of failures along this cliff will help indicate potential rockfall patterns in other areas of the valley.

While rockfalls are common in Yosemite—they are an integral part of the nature of the beast—the Happy Isles slides were unusual. The only other documented rockslide accompanied by a massive air blast was one of a series of slides generated by the earthquake of March 26, 1872. The air blast occurred when a long slab on the west side of Liberty Cap fell. Galen Clark wrote that the impact immediately knocked Albert Snow to the ground and moved Snow's Hotel below Nevada Fall (also known as La Casa Nevada) two inches off its foundations while so severely damaging another building that it had to be taken down and rebuilt. The hotel area also was covered with dust.¹²

No one died in the 1872 rockfall and blast. Although the Happy Isles slides brought the unfortunate death of Emiliano Morales at the ice cream stand, had the rockfall occurred when more people were present, it might have been far worse for Yosemite visitors and employees alike. In human terms, however, the valley remains far safer than the freeways and cities outside it. Rockslides are normal in Yosemite; they are part of ongoing processes, a great work in progress, so to speak, which a renewed Happy Isles should demonstrate.

Study of these slides will tell us more about rates and processes of erosion and about talus formation. Knowing about the very different effects that can result from high elevation releases, we will be better able to see how talus forms, how some of the rocks come to rest far out in the valley, and how effects of rockfall carry well beyond the fall line. We will also learn more about the ongoing effects of glaciation and climate change on erosion patterns and evolution of the valley floor. In the long run, this information will help us better provide for the safety of people and facilities in Yosemite Valley and make us think a little differently about our visits here.

Understanding the processes can make our responses to rockfall more effective, while keeping those responses appropriate, demonstrating that we can live as gracefully as possible with the workings of nature. Air blasts, for example, occur with massive rockfall along steep cliffs where rocks drop with little breakage. Potential locations for such events can be mapped, and air blast potential can be added to maps of valley rockslides and talus. Rockfall hazards can be described; processes can be better anticipated. But ultimately each one of us must take some

responsibility for understanding and living within "the cleft or 'gorge' in the granite peak of the Sierra Nevada Mountains," as the 1864 Yosemite Grant neatly put it, that we all admire.

Author's note: I could never have written this piece without the ongoing assistance of US Geological Survey scientists like Gerald Wieczorek and King Huber. Their contributions to the study of Yosemite geology are the best example of the long, productive relationship between the National Park Service and the Geological Survey. Their publications may be consulted for much more detailed geological explanations of erosion processes in Yosemite rock.

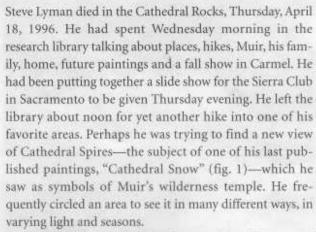
Jim Snyder is presently the Park Historian for Yosemite. He worked many years for the NPS in the backcountry where rockslides on park trails brought him into contact with US Geological Survey scientists. In this article, he uses this expertise as he looks at the Happy Isles rockslide and compares it to earlier slides in Yosemite's history.

Notes

- San Francisco Chronicle, July 12, 1996,
 A-5; Mariposa Gazette, July 18, 1996,
 p. 14; and Davis Enterprise, July 11, 1996,
 p. A-1.
- Davis Enterprise, July 11, 1996, p. A-4;
 San Francisco Examiner, Afternoon
 Edition, July 12, 1996, p. A-16; Mariposa
 Gazette, July 18, 1996, p. 1; and
 Sacramento Bee, July 12, 1996, p. A-18.
- 3. The best photograph of the arch before its collapse appears in Robert Cameron, Above Yosemite (San Francisco, CA: Cameron and Co., 1983), lower left hand corner of p. 44.
- 4. Frank C. Calkins and others, "Bedrock Geologic Map of Yosemite Valley, Yosemite National Park, California," US Geological Survey Miscellaneous Investigations Series Map I-1639 (1985). See also N. King Huber et al, "Geologic Map of Yosemite National Park and Vicinity, California," US Geological Survey Miscellaneous Investigations Series Map I-1874 (1989), and N. King Huber, The Geologic Story of Yosemite National Park, US Geological Survey Bulletin 1595 (Washington: GPO, 1987; Yosemite, CA: Yosemite Association, 1989), Plate 2.

- Huber, Geologic Story, pp. 33-35, explains exfoliation with illustrations including a similar but more massive structure, the Royal Arches above the Ahwahnee Hotel.
- Gerald F. Wieczorek, et al, Rock Falls in Yosemite Valley, California, US Geological Survey Open-File Report 92-387 (Reston, VA: USGS, 1992), Appendix 2, p. 54, and Plate 4.
- 7. Information about the seismic record of the rockfall came in a written communication from Robert Uhrhammer of the UC Berkeley Seismographic Station to Gerald Weiczorek of the USGS. In addition, following the rockfall USGS seismologist Bob Norris installed a small seismograph at the top of the release point to record any movement after the rockfall. In five days the record showed several very small earthquakes in the Mammoth area with no effects on the release point, some small rockfall from the ledges of loose rock below the release point, and signs of a large mammal, probably a bear, walking near the seismograph. There was no sign of further movement in the release point during this period. Nor was there any support for the spurious suggestion that construction at Glacier Point had initiated the rockfall in the first place.
- 8. See Francois E. Matthes, Geologic History of the Yosemite Valley, US Geological Survey Professional Paper 160 (Washington: GPO, 1930), plate 39, "Map of Ancient Glaciers of the Yosemite Region." See also Tau Rho Alpha, Clyde Wahrhaftig, and N. King Huber, "Oblique Map Showing Maximum Extent of 20,000-Year-Old (Tioga) Glaciers, Yosemite National Park, Central Sierra Nevada, California," US Geological Survey Miscellaneous Investigations Series Map I-1885 (USGS, 1987).
- Written communication from Gerald F. Wieczorek.
- Written communication from Gerald F. Wieczorek.
- Harvey Monroe Hall and Carlotta Case Hall, A Yosemite Flora (San Francisco, CA: Paul Elder and Co., 1912), p. 62.
- 12. See Wieczorek, et al, Rock Falls in Yosemite Valley, Appendix 2, p. 3.

REMEMBERING STEVE LYMAN IN YOSEMITE



He may have been looking for new views of Lower and Middle Brother, rising out of the mists and framed by the steep rock cliffs of the gully where he took his last photographs. He may have been trying to find a more direct way down ahead of a developing storm, which did bring snow well down the valley walls that night. In any event, he found himself trapped, quite cold, and soaked through on a ledge at the bottom of the chimney he had chosen to descend. Thursday morning he called out, for he could see cars on the road beneath him. His calls were heard but could not be located. Then they stopped. In all likelihood he was trying to find a way along one of the phantom ledges leading out from his overnight perch when, wet and cold in the winter shadow, he slipped and fell.

I met Steve first through one of his paintings, "Yosemite Alpenglow" (fig. 2). The Yosemite Association sent me a poster depicting Yosemite Valley and the Sierran crest from Eagle Peak in the fall of the year, and asked for my comments before stocking it in the visitor center. It came with an outline naming the peaks and points shown. We wanted to make sure that the names on what appeared to be a large photograph were all correct. On looking at the print more carefully, we realized it was not a photograph at all, but a wonderfully detailed painting. Nor was it a photographic painting, for some of the peaks had been realigned, played up or down to balance the view in the artist's mind. Most striking was Yosemite Valley in which there were no buildings, roads, or cars. With the stroke of his brush, Steve Lyman had implemented Yosemite's General Management Plan. In his painting the valley was wilderness once more.

That was a dozen years ago now. "Yosemite Alpenglow" was Steve's first major Yosemite piece, a print he produced himself, supervising the separations and the color work. After commenting on it, I quickly received a letter from Steve tentatively addressed, "Dear Mr. Snyder." Steve had read a National Geographic article on Yosemite and

discovered with pleasure that you are a 'disciple' of John Muir. I am too, and like you, have endeavored to reach the spots in Yosemite which John Muir...had been to. I guess there are many of us followers of Muir 'exploring' and experiencing Yosemite in his footsteps.

"But," he continued, "I have a particular interest in the exact spots and circumstances which Muir found adventure in." And so we entered into a long, sporadic conversation about Muir and mountains that continued to the day he died.

It was Muir who had first drawn Steve to Yosemite. Steve read several of Muir's books (My First Summer in the Sierra and The Mountains of California, in particular) while attending the Art Center School of Design in Pasadena. He was inspired by the great naturalist to see the place. Steve's reading and first visit initiated a life-long love affair with Yosemite and wilderness. He did not set out to see it all at once. He followed some of Muir's paths but more often took his own, prompted by Muir's inspiration. He knew the value of time in a place, the different perspectives that wandering can bring. Weather was ordinarily no object to him; some of his finest moments came in getting caught alone in the snow and seeing the world afresh when the storm passed and day broke. He'd come into the library afterwards to tell about the trip. "You weren't worried about me, were you?" he'd ask with an impish grin, cocking his head slightly to the side. Particular, often nameless places caught his fancy and drew him like a magnet for repeated visits and photographs to catch changing moods, light, and color. Miles of climbing and slogging through snow to get there only made his grin the wider. He came to be comfortable in the adversity of the elements, which he saw as natural processes to experience and embrace.

Red Devil Lake was one of his favorite places, the general location of "Moonfire" and "Embers at Dawn" (fig. 3). He was often asked if he really built fires there so close to the water. He would smile and explain his interest in fire and water as vehicles of light. He was interested in the balance between these elements and mountains, and in



Cathedral Snow (figure 1)

how fire and water connected humans to those mountains. On his trips he was always careful with his fires and often did without. He was also interested in the history of the places he visited, curious to know who had been there before him. It was fun to chide Steve for having missed a bit of history at Red Devil - a carving of the date "1898" on a lodgepole pine at the lake's outlet very near the locations of his paintings. That carving had been made by U.S. Geological Survey topographer R. B. Marshall with whom Steve would probably have found some affinity. Marshall, following some of Theodore Solomons' footsteps and suggestions, was mapping the Clark Range for the 30 minute scale Mt. Lyell quadrangle. Marshall mapped the land; Lyman mapped its light.

John Muir became a major influence in Steve's life. He read and collected as much of Muir's work as he could find. The books, which he read many times, were as close as he could get to Muir's person, he supposed, although he also felt near to Muir when he visited and absorbed the rooms and "scribble-den" at Muir's home in Martinez. The Muir volumes provided Steve a physical connection apart from the spiritual connection in the mountains. He memorized "Stickeen" to tell as an animated story at his children's school. Often seeking out locations mentioned by Muir in his writings, Steve immersed himself in both site and context. And he wanted to feel what Muir felt in

the wilderness; there was as much a "wild" Lyman as there was a "wild" Muir. Significantly, Steve and wife Andrea's first son was named Muir.

Lyman was quite a photographer, on his trips taking many pictures of animals, birds, and flowers, as well as of colorful configurations of clouds and snow. His last images included a coyote checking out part of the valley floor, lichen brightened with rain along Bridalveil Creek, the lip of Bridalveil Fall itself, and studies of the brilliant contrast between the wet, red skin of manzanita and its black branches charred in a fire the year before.

Steve played with photography (including stereo and infrared), using it for jokes such as the series of his gigantic vegetables, which became common stock in his last slide shows. He took frequent photos of himself on his outings, sometimes clowning for the camera and his eventual audience. His camera helped make statements, too, as in the photograph taken at Tunnel View from which he erased Half Dome. He wanted to see if anyone would miss the "extinction" of the Yosemite icon. Sketching frequently, he used his drawings and photographs to recreate at home the vision he had developed for a particular painting in the wilderness.

Even though Steve began his career with Greenwich Workshop as a wildlife artist, it was the painting of water and fire that set him apart. These elements, bearers of



Yosemite Alpenglow (figure 2)

light, are fluid, their ever-changing composition not quite capable of material definition. That was the challenge to him; to understand and express in paint the fluid movements of the natural occurrence. If he could do that, he could somehow understand wildness and wilderness in a deeper way. "Muir wrote; I paint," Steve once said to me.

When he painted the grizzly bear as one of his series of paintings of endangered and extinct species in Yosemite, he located the bear in the Grand Canyon of the Tuolumne at one of its many glistening slickrock pools (fig. 4). The bear had disappeared from the park and the state, but the water had not. Water in this case was a medium for hope and supplied much more than simply foreground for the bear.

The depiction of a wilderness fire in a painting is unusual. Though he made fires only part of the time, campfires meant special things to Steve; the fires in his paintings were the subject of his 1992 book Firelight. He made a point of studying Albert Bierstadt's painting of a nighttime campfire in Yosemite Valley (dated 1864) to see how the subject had been handled by a master artist before him. He wrote that fire was "the essence of wildness." But was it? Steve's paintings remind me of many fires I've sat beside, alone and with others, in many wonderful places and times. While fire may be the essence of wildness, isn't a campfire a sort of domesticated wildness? A campfire is contained the same way fire is contained in a candle or lantern.

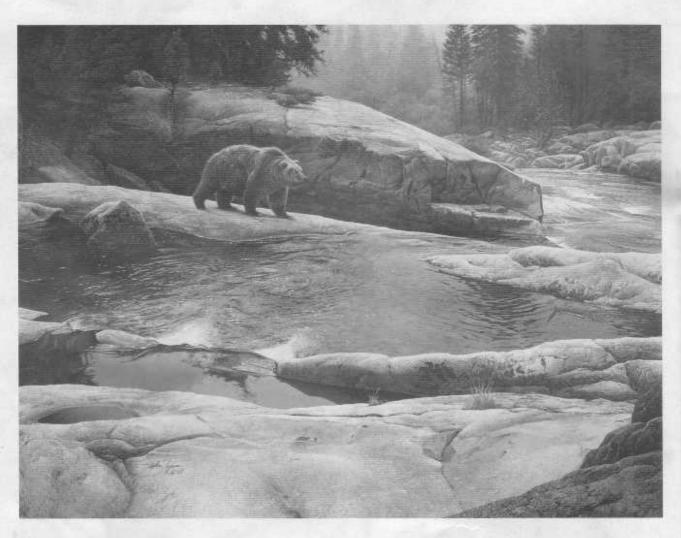
For a different realization of wildness, consider the experience of an old European, who wrote me a letter just about the time both Firelight and Steve's print "Lake of the Shining Rocks" (fig. 5) were issued. After visiting Yosemite Valley, this elderly gentleman travelled to Tenaya Lake. He was struck with an "eerie impression" of Tenaya's "pristine beauty." But later the lake's impression on him grew more severe, even terrifying. The lake, barren rock, and deep woods affected him so much, "I did not leave the car." For all its light on Mt. Conness, Steve's "Lake of the Shining Rocks" is also dark and a little foreboding. The dark woods and looming granite prominences of Polly Dome and Fairview Dome give something of that "eerie" impression the old European felt. There were no softening ties between the wilderness and him.

While Steve rejoiced in the circumstances of edges, borders, and gray areas, for others, a sense of threat is nevertheless a common, if subtle, feeling. Often they depend on a campfire more than anything else to "warm the view" because there can be something otherwise frightening about the wild. The sharp contrast between the warmth of the firelight from a campfire and the cold woods is something many people cannot entirely resolve.

Two of Steve's last published paintings addressed this tension in a way. In "Midnight Fire", Steve tried to combine a domestic campfire with the northern lights, which move, as he thought, much the way a campfire does. By



Embers at Dawn (figure 3)



Uzamati (figure 4) bringing wild and domestic fires together, he provided a strikingly different angle on the normal contrast between them. Closer to home, perhaps, was "Thunderbolt", showing an electrical fire from the sky striking a juniper. Steve had never seen a tree struck by lightning himself, and we talked at length about lightning hitting a tree atop the Eagle Tower across from Yosemite Falls, one of the very few lightning strikes to have generated a rockslide. His painting shows the strike as a suddenly beautiful action, not necessarily destructive, characterized by electrical light and force. He would have been drawn to the experience as he was to most events of the wild, small and large, routine and cataclysmic, because those events and the movement of light with them summarized his maturing view of the wild and his relationship with it.

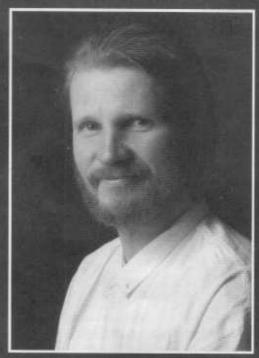
The light, water, and enduring wildness of Yosemite Valley called Steve Lyman back repeatedly. Almost invariably during those trips he would come to the research library to show us his latest painting or to talk about a place. When he wasn't staying with friends or out in the backcountry, he would slip down to the river at night to sleep in a grassy nest at the foot of a pine with a full view of Half Dome, restful and especially tantalizing on moon-

lit nights. His wife Andrea found this note written in his journal for April 14, 1996, a few days before he fell:

These mountains have felt and seen so much: their rise into the sky millions of years ago, the glaciers slip over them, the carpet of trees springs forth as a garment, the native ones hunt grizzly, deer and woodpeckers, the falcons nest, the waterfalls boom, and a million tourists ride shuttlebuses! We are simply a blink in their stone eyes. This is a GRAND place.

And now Steve is part of the rocks and forests, meadows and rivers here. Yet when we become too involved in the prosaic routines of Yosemite, his art and the memory of his mischievous smile will remind us why we are really here. His paintings, his journals, and his photographs will help keep the light on the mountains. His was a GRAND fire!

Jim Snyder, Park Historian, was a long time friend of Steve Lyman and wrote this tribute to him in July. All of the paintings used to illustrate this article appear in Lyman's last book, Into the Wilderness—An Artist's Journey, which is available for purchase in the Catalog section of this journal.



Steve Lyman 1958–1996



Luke of the Williams Hocks (Grave 5)

MEMBERS



WANTED:

Tuolumne Meadows Volunteers for 1997

Think ahead now to next summer! Would you like to spend a month in the largest and most spectacular sub-alpine meadow in the Sierra Nevada? The volunteer tasks at Tuolumne Meadows are varied and interesting. There's lots of public contact meeting seminar participants as they arrive in the campground or giving information to park visitors at the membership booth at the Tuolumne Meadows Visitor Center. Volunteers work four to five days a week, and have plenty of free time to walk, hike and explore the spectacular high country. It's early to be thinking of summer '97, but if you'd like to camp and live in Tuolumne for a month or longer, please call or write the YA office for more information.



Oops!

Due to a one-time software malfunction, some members received multiple copies of the summer issue of *Yosemite*, the members' journal, and other people unfortunately did not receive any. The problem has been corrected,



but since the program repeated and deleted names at random, we are unable to send journals to those missing them. If you did not receive a copy of the issue pictured here, please call us (209/379-2646) or write a postcard, and we will send one along.

Association Dates

March 22, 1997: YA Spring Forum, Yosemite Valley

September 12–14, 1997: Twenty-second Annual Meeting, Tuolumne Meadows

209/379-2317

If you're planning a trip to Yosemite and have questions, give our phone line a call between the hours of 9:00 a.m. and 4:30 p.m. Monday through Friday. We don't make reservations, but we can give appropriate phone numbers and usually lots of helpful advice.

YA's Invaluable Volunteers

Do you enjoy working with the public? Are you willing to donate a month or more of your time doing meaningful work for Yosemite and the Association? Are you flexible, energetic, friendly, and knowledgeable about the park and YA? Can you bring your own camping equipment? For the summer of 1996, 34 enthusiastic YA members answered an emphatic "Yes!" to these questions.

Most of these members live in California but others came from as far away as Quebec, Canada and Pennsylvania. Many had volunteered before; some were new to the program. Beginning in May with a group of six and "changing the guard" each month through September, 29 loyal YA members worked in Yosemite Valley, some of them staying for more than a month. The first group of the season experienced a bit of excitement when they were driven from their campsites by the flooding Merced River which forced closure of the park. Volunteers and other



May Volunteers: Wayne Petersen, Helen DeCoster, Donna Petersen, Eston Davis, Ethel Davis

campers alike were routed from their beds and evacuated from the Valley campgrounds. But they took it all in stride, things soon returned to normal. In July, the immense Happy Isles rockslide



July Volunteers: John McClary, Kathie Orr, Mary Jane Stephan, Dorothy Kirkpatrick, John McCaffrey, Virgina Ferguson, Barbara Cady (seated)

shook the Valley and the volunteers. But again, the July folks took it in their stride, and the remainder of the season passed without serious incident.

Since federal budget cutbacks in recent years have caused reduction in staff, the Park Service has increasingly come to depend on volunteers for a variety of tasks. The Museum Gallery in Yosemite Valley is open to the public only when YA volunteers are available to staff it. From June to September of this year, over 46,500 visitors were able to view the Gallery exhibit because of our members' efforts. The interpretive division of the Park Service in Yosemite counts on volunteers to introduce and operate the Valley Visitor Center's Orientation Slide Show and welcome visitors to the park. Having YA volunteers operate the "O- Show" not only allowed over 33,600 people to view the 1,246 showings, but also freed NPS interpreters to make many visitor contacts in critical Valley day use areas.

In Tuolumne Meadows, five hardy volunteers donated their time to work in the park. Krista Peterson, Rita Kern, Judy Richards, Elwynne Trepel, and Elizabeth Schultz assisted the Park Service by staffing the visitor contact station at Parson's Lodge.

In addition to the above duties, YA

needs volunteers to staff its information/membership booths and encourage membership in the Association, act as hosts at the seminar campgrounds, and serve as goodwill ambassadors. Preliminary figures from this year's booths indicate that nearly 400 people joined or renewed their memberships in YA which led to a total revenue of over \$15,000. Our members also welcomed over 400

continued on page 23



June Volunteers: Ray McKeever, John Cappello, Bob Hauk, Jack Snodgrass, Linda Jo Graham, (seated) Marilyn McKeever, Terry Cappello, Pat Hauk, Velma Snodgrass

YOSEMITE CATALOG

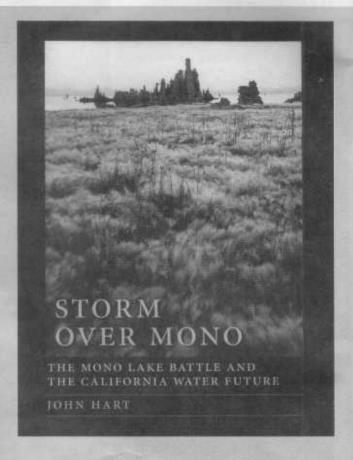
31985 Storm Over Mono - The Mono Lake Battle and the California Water Future

by John Hart

Here is an absorbing and illuminating account of the long and fiercely contested battle for Mono Lake. It tells the story of the work of a hand full of individuals to bring attention to the lake and its plight, and the amazing success that resulted from their efforts, It's a classic confrontation of Goliath (the City of Los Angeles) and David in the guise of the Mono Lake Committee.

It now appears that external use of Mono Lake's waters will be restricted and that it will return to a healthy condition. Perhaps lessons learned in the process of saving the lake will help in future situations where economic development and environmental protection need to be balanced.

The author has integrated natural, social, and political history into a story that is a source of hope for anyone concerned about the environment. 212 pages, 31 color photos, 71 illustrations. University of California Press, 1996. Paper, \$29.95.





25082 National Parks and the Woman's Voice - A History

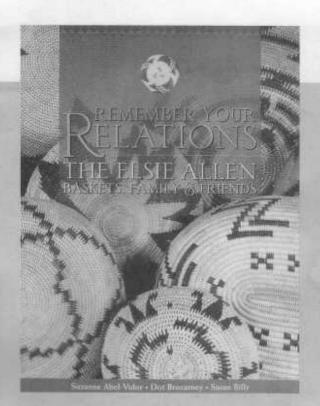
by Polly Welts Kaufman

This study demonstrates convincingly that as travelers, mountain climbers, park founders, environmentalists, wives, and park rangers, women have helped to shape the great National Park System we know today. It's a chapter that's been missing from the history of the protection of public lands, and it takes a giant step toward putting women in their rightful places in envirnomental history.

The author presents the story of women's contributions (often in their own words), and documents their struggle to gain professional acceptance in a male-dominated organization that evolved from a military culture. The book is an important account of the role women have played in the National Parks. 305 pages, illus., University of New Mexico Press, 1996. Cloth, \$42,50.



This newly developed waist pack features seven pockets for everything you'll need when you're hiking or enjoying time in the outdoors. The main pocket is sized to accommodate field guides, travel books, or binoculars, there are smaller pockets (including one with a zipper) for note pads and maps, and specialized pockets for pencils, pens, and sunglasses. Best of all, a secret pocket sealed with Velcro keeps keys, credit cards, and other valuables safe. It's the best such pack we've found. Made in the U.S.A. of durable Cordura in forest green and black by Pajaro.



29120 Remember Your Relations - The Elsie Allen Baskets, Family & Friends

by Suzanne Abel-Vidor, Dot Brovarney, and Susan Billy

This is a colorful tribute to Pomo baskets and their makers through an examination of the Elsie Allen basket collection. A Pomo basketmaker herself, Allen inherited a remarkable group of baskets from her mother, then added to them for some forty years. They range from large storage baskets to delicate miniatures, from crude traps to meticulously crafted watertight cooking baskets.

The book is replete with photographs of and information about the twenty-six native weavers represented in the collection, and their baskets are carefully detailed. The past, present, and future of the Pomo people, community, and culture are all discussed, and much other valuable data about Pomo basketry is included.

Remember Your Relations is an eye-opening introduction to Pomo basketry, but it will also inspire those already familiar with this exceptional art. 128 pages with many color and black-and-white photographs. Co-published by the Grace Hudson Museum, the Oakland Museum, and Heyday Books. Paper, \$20.00.

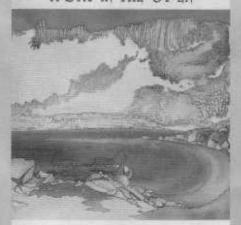
04060 Night at Valley View

by Albert Bierstadt

The classic Albert Bierstadt oil painting depicting Yosemite Valley under the blanket of night has been displayed in the Yosemite Visitor Center and Museum Gallery for years, but never reproduced in a poster format. Now this favorite of park visitors finally has been published in a 25° x 31° format on high quality recycled paper, and it is beautiful. The deep black tones of the valley walls and the darkened sky contrast remarkably with the red campfire and the lemon moon. Fans of Bierstadt's unique painting will appreciate this handsome poster. Yosemite Association, 1996. \$10



A NIGHT ON THE GROUND A DAY IN THE OPEN



DOUG ROBINSON

25590 A Night on the Ground, A Day in the Open

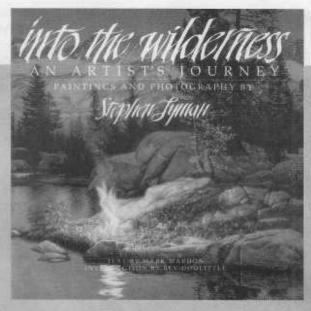
by Doug Robinson

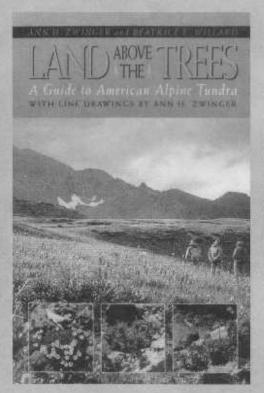
This is a collection of essays from a writer/mountaineer who has spent most of his life in the High Sierra. The book encompasses thirty years of climbing, skiing, hang gliding, hiking, and generally experiencing all that the mountains have to offer. From a sociological piece on Camp 4 to a discourse on climbing with style to a comparison of a drug-induced high to that produced by climbing and other outdoor pursuits, the volume is full of entertaining observations, experiences, and insights. Of particular interest to Yosemite-philes is the wealth of historical data about early climbing, including routes, personalities, and lore.

Described as a cross between John Muir and Jack Kerouac and also as a mountain vagabond, the author has produced a engaging compilation filled with gems for practically every outdoorsperson. 256 pages, illustrated with black and white photographs. Mountain N' Air Books, 1996. Paper, \$19.00.

20493 Into the Wilderness - An Artist's Journey

with paintings and photography by Stephen Lyman and text by Mark Mardon
Artist Stephen Lyman spent much time in Yosemite, learning its special secrets
and painting all its aspects from wildlife to wilderness. Through his art and
photography, this book takes readers into backcountry regions very few have
experienced, both in Yosemite and elsewhere. Enhanced by the words of former Sierra editor Mark Mardon, Lyman's imagery of deep woods, water,
mountain tops, campfires, and grizzly bears is extraordinary and joyous. The
beautiful, full-color illustrations make this a remarkable book, full of surprises
and pleasures. Artist Bev Doolitle contributed an introduction. 180 pages, over
125-color paintings, photographs, and drawings, The Greenwich Workshop,
1995. Cloth, \$40





22025 Land Above the Trees -A Guide to American Alpine Tundra

by Ann H. Zwinger and Beatrice E. Willard

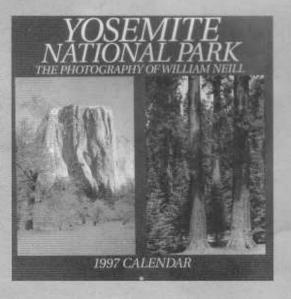
Originally published in 1972, this is the fourth edition of what is
still the only book to describe the plants, animals, climate, geology,
land forms, and human history of the alpine regions of the United
States. In reviewing the work for re-publication, the authors discovered that the work is still a vital and accurate guide to the zone
between the treeline and perpetual snow.

Beautifully illustrated with numerous pencil drawings, the book is an authoritative work with universal appeal, 426 pages, Johnson Books, 1996. Paper, \$19.95.

11700 Yosemite National Park 1997 -The Photography of William Neill

by Browntrout Publishers

The Yosemite calendar for 1997 is as colorful and breathtaking as always. Featuring the images of William Neill, who last year won the Sierra Club's Ansel Adams Award, it includes twelve full-color photographs (one for each month) of scenes throughout the park, but primarily Yosemite Valley. The monthly grids are annotated with holidays, moon phases, and other significant events. The wall-hanging calendar measures12" wide by 24" high when opened, Browntrout Publishers, 1996. \$9.95





07576 Yosemite Association Patch

Our Association logo is embroidered on colorful, sturdy fabric for placement on daypacks, shirts, blue jeans, jackets, or wherever! The newly-designed patch

is available in three attractive colors: dark blue, forest green, and maroon. \$3.00 (please specify color)



07800 Yosemite Wilderness Pin

Here's a beautiful enamel pin commemorating Yosemite's unparalleled wilderness. It's circular in shape with a high country scene rendered in blues, grays, and greens. A real treasure for collectors. Approximately 1 inch in diameter, \$4,00

07510 Yosemite Association Mug

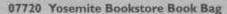
This distinctive and functional heavy ceramic mug feels good with your hand wrapped around it. Available in two colors (green and maroon), it's imprinted with our logo and name in black and white. Holds 12 ounces of your favorite beverage, \$6.50 (please specify color)



400 Sierra Nevada Field Card Set

Illustrated by Elizabeth Morales

These handy field identification cards depict the most commonly seen birds, mammals, trees, and wildflowers from the Sierra Nevada region. Illustrated with color drawings and including information about the size, habitat, and other field marks of each, the cards are unbreakable, waterproof vinyl plastic and fit conveniently in one's daypack or glove compartment. Particularly helpful for newcomers to the Sierra as regularly observed flora and fauna can be quickly identified. Four plastic cards printed on both sides, Yosemite Association, 1991 and 1995, \$11.00



Conserve resources with YA's handy book bag made from durable 100% cotton fabric with a sturdy web handle. Cream-colored, it's imprinted in blue with the Yosemite Bookstore logo. Fine craftsmanship and generous oversized design make this a bag you'll want to take everywhere. Approximately 17 x 16 inches, \$8.95



07505 Yosemite Association Baseball-Style Cap

Our YA caps are made of corduroy with an adjustable strap at the back so that one size fits all. The cap is adorned with a YA logo patch, and comes in dark blue, forest green and maroon colors. The cap is stylish and comfortable, and wearing it is a good way to demonstrate your support for Yosemite. \$9.95 (please specify color)



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Volunteers continued from page 17

seminar participants to their campsites in the Valley and Tuolumne.

This year's campsite coordinators Ethel and Eston Davis, Ray and Marilyn McKeever, Barbara Cady, and Kathie Orr took on the additional responsibilities of arranging schedules, orienting new volunteers and getting people settled in campsites, and interfacing with the YA office staff.

Filling out the roster for the season were returning volunteers C.J. Flores, Helen DeCoster, Bob and Pat Hauk, Jack Snodgrass, Virginia Ferguson, John McClary, Dorothy Kirkpatrick, Ellen Wright, Bill McCluskey, Bob and Jinny Wilson, and Julie Schuller and new recruits Wayne and Donna Petersen, John McCaffrey, John and Terry Cappello, Velma Snodgrass, Linda Jo Graham, Mary Jane Stephan, and Ken and Patsy McKay.

Both YA and the NPS rely heavily on volunteers to carry out various duties. The Association, the visiting public, and the National Park Service are greatly indebted to these members for their philanthropic efforts. Because of their devotion, many tasks were performed that otherwise would not have been possible. They have earned our sincere thanks for their many contributions.

Ostrander Ski Hut

The Ostrander Lake Ski Hut will be open for the winter season on December 20, 1996 under the same interim arrangement as last year. The hut is open and staffed during the winter to encourage ski touring. The trip to the hut is approximately nine miles and requires considerable stamina and cross-country skiing experience.

The hut accommodates 25 people and is equipped with bunks and mattresses, a small kitchen, and a woodburning stove. The charge is \$20 per person/per night. A lottery is held in November for weekend reservations. For more information: Ostrander Reservations, PO Box 545, Yosemite, CA 95589 (209/372-0740).

Yosemac is published quarterly for members of the Yosemite Association.

Editor: Holly Warner

Design: Robin Weiss Graphic Design

Cover Photo: Pacific Aerial Surveys; Cover inset: Detail from painting by Stephen Lyman

61996 Yosemite Association. Submission of manuscripts, photographs, and other materials is welcomed.

E-mail can be sent to: YOSE_Yosemite_Association@nps.gov



Address correction requested



Dan Anderson

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