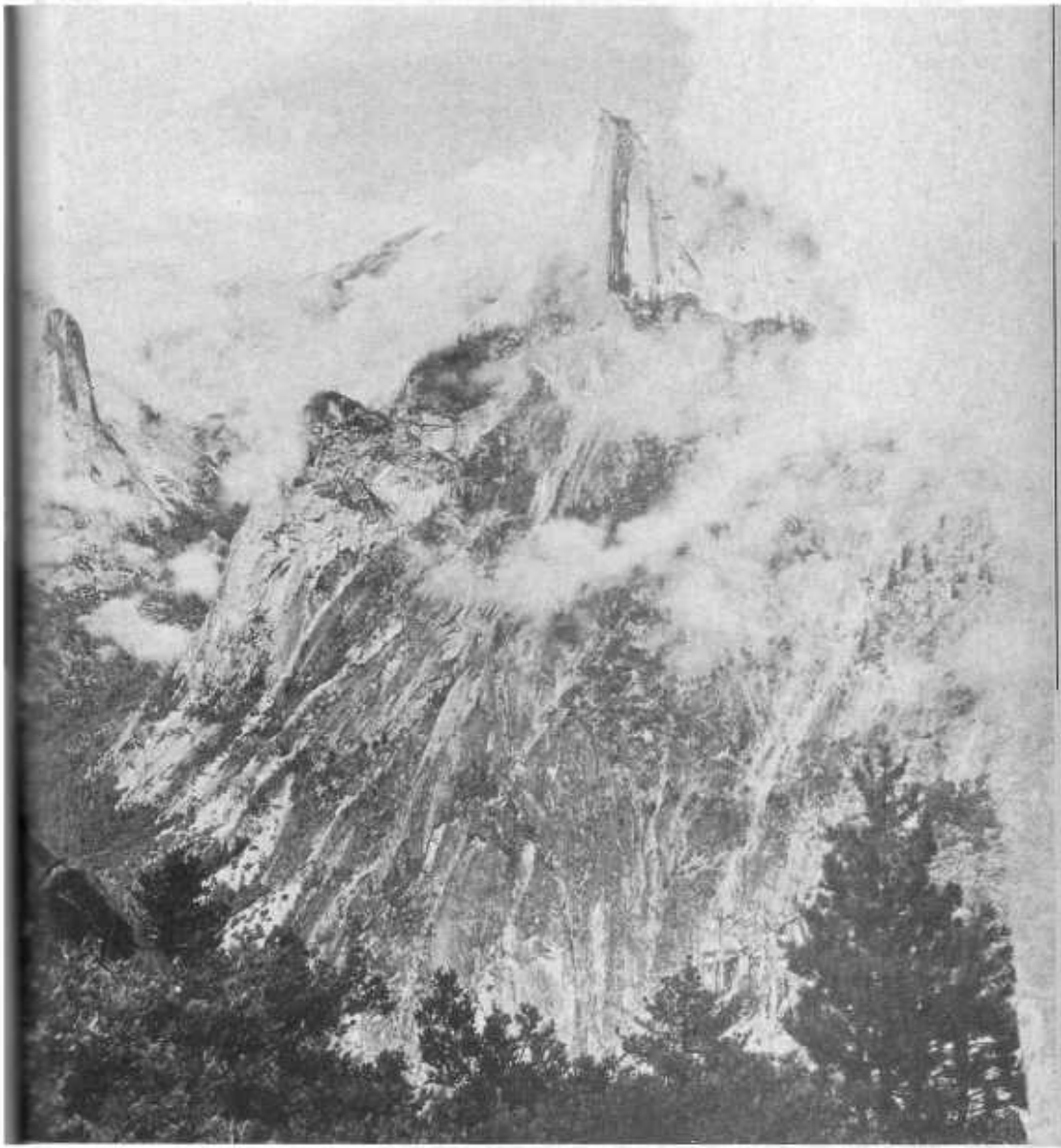
YOSEMITE

NATURE NOTES

VOLUME XXXVII - NUMBER 11 NOVEMBER 1958



—NPS

In cooperation with the National Park Service.

—*Anderson, N*

First climbed in 1875, a cable-stairway now leads to the summit of Half Dome.

YOSEMITE
Nature Notes

in its 37th year of public service. The monthly publication of Yosemite's park naturalists and the Yosemite Natural History Association.

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AN ELECTRICAL STORM ON HALF DOME

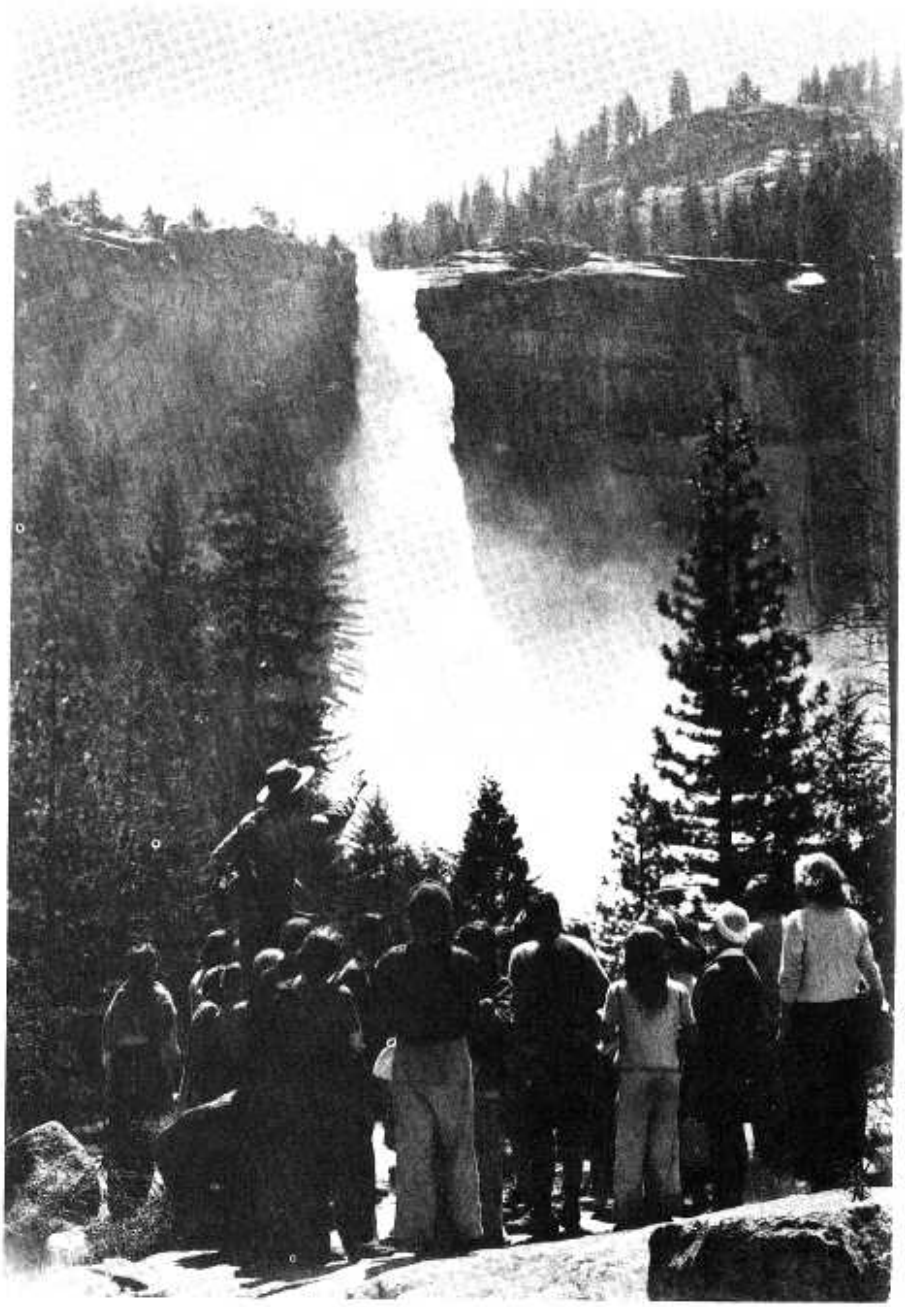
By Charles Vollmer, Ranger-Naturalist

Ever been hit by lightning? The account I am putting down here was experienced by twenty-three persons, all of whom walked away with only fatigued muscles, probably due to over-stimulation of the nervous system. The psychological effect was most likely the greatest factor in producing our exhaustion. After the danger was over, I experienced a physical let down, which gradually was overcome by a return of strength.

On Friday, August 9, 1958, the Half Dome all-day hike started at 6:15 a.m. There were twenty-one hikers; Ted McVey, a ranger-naturalist who had never been on top; Vick Williams, a museum aide, and myself. At the second rest stop our hikers diminished by one. All twenty of these park visitors were good hikers, and should be commended for their coolness in the face of danger.

There was nothing unusual about our trip up. We made fairly good time. It was 11:23 a.m. when we started up the 800 foot long double cable, by means of which it is possible to make the final steep ascent of Half Dome's east side. All had reached the top by 11:50. We ate our lunches in bright sunlight There were clouds to the north, and fewer to the south, but none to our west. After eating there were the usual pictures. Storm clouds gathered rapidly above us. We summoned everyone to descend. The time was close to one o'clock. Seven persons were missing. Vick Williams was dispatched to find them. We waited. He returned without them, and someone remembered seeing some heads passing out of view over the rock.

We started down. The next thing I remember was a strong shocking sensation in my hands and arms. At first I couldn't let go of the cable. When I finally untangled my hands from the cable, I fell over on my back. I lay there several minutes. Gradually the fog in my brain cleared. But I still couldn't move my



—Anderson, NPS

Nevada Fall — on the trail to Half Dome

fingers. During this time our muscles were in shock, or "tetanus" as the physiologist calls it. I wondered if my fingers and arms would ever straighten again.

It affected all of us on the cable in this way. Some had their arms bent; in others the legs seem to be affected also. After two or three minutes, I believe, I turned to shout to the others to move away from the cable. The boys close to me gradually moved, and soon all within my vision were all right. Ted McVey appeared at the top of the rock to say that the people near him were not injured but shaken up a bit. Later, I learned that the bolt of lightning had struck near Ted McVey. He described the strike as a blue flash, followed by a deafening crack. He found it hard to believe that I had not heard so loud a noise. The only explanation I have for my deafness is that I must have been unconscious in the fraction of a second that followed the bolt.

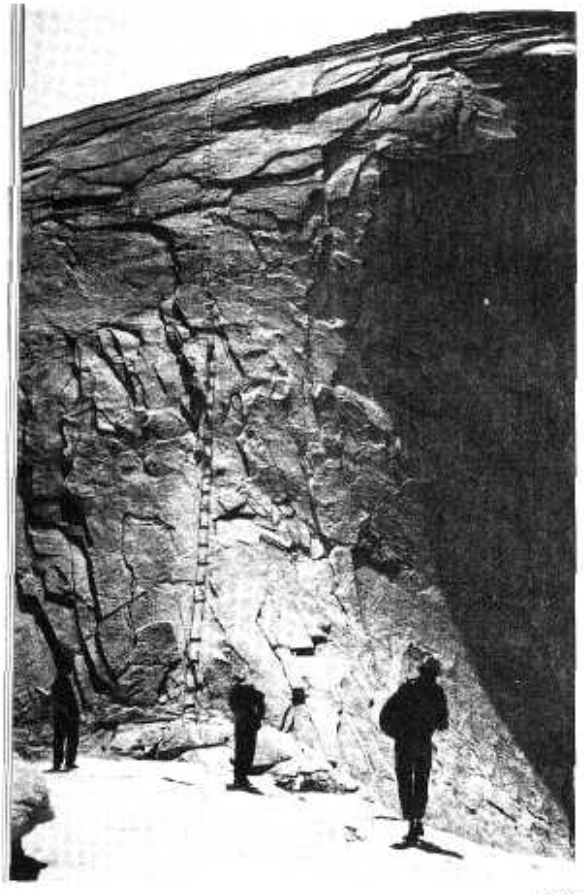
My first impulse was to get off of the lofty rock before we got wet and before another strike could put us in greater danger. Descent by the seat of the pants was the only way. Only during the steepest part was it necessary to use the cable. This was preferrable to complete loss of control.

The seven that had gone ahead soon came into view. Then I knew that all were accounted for. These seven had received the only injuries. The others had managed to fall backward.

Down progress was slow. We covered the eight-hundred feet in about forty minutes. At one-fifty we were off the cable, but not yet out of danger. The wind was south-west. We could see a heavy rain storm in progress in Little Yosemite Valley. It seemed that we might escape a wetting, and thereby be poorer conductors of electricity. We did remain dry. Our hike back to Nevada Fall

—*NPS*

Build-up of thunderhead over Half Dome.



—NPS

To the top.

was uneventful. As our anxiety subsided, our energy gradually returned. We reached thankful parents and friends at Happy Isles at 5 p.m.

It would seem worthwhile to bring out some precautions that are the concensus of those who have experienced electrical storms while on mountains. When there are cumulonimbus clouds anywhere near or on the horizons, do not climb to a summit. These large billowing clouds predict a frontal activity that usually involve a wide area. Since storm clouds can travel at the rate of one hundred miles per hour, even the most prudent mountain climber may find himself in the clutches of an electrical storm. There is danger both from a direct strike and from ground currents. There is much less chance of being the victim of a direct strike, and thus immediate death, at any where but on the summit or ridges. If circumstances prevent your getting off the summit, then a squatting position with head lowered is best. Since the discharge from the cloud will seek the shortest route, a pinnacle or rock in the vicinity, or a rise of as little as 15 feet will give lightning rod protection. In our case the cables on Half Dome acted as the lightning rod. I believe the cable grounded, and thus dispersed the charge to a large extent. We were fortunate that we were not wet, because then we would have been better conductors.

As for the ground currents, they can be dangerous, and have caused deaths. Since these ground currents seek out the shortest routes down slopes, the precaution in this case is to get on a rock with the least amount of slope.[3] Caves are not as safe as one would expect, as the experience on Bugaboo mountain proved.[4] Especially when one is wet touching the roof of the cave makes for easy conductivity of the ground currents.

Since Half Dome is a popular hike it would be advisable to take precautions in the event of a wetting during an electrical storm. Go to the lowest spot on the rock, and crouch with head low. If you are not wet and have gloves, descend by the cable. Better yet, descend by the seat of the pants.

Although there is some danger in the mountains, acts of nature seldom

—*Anderson, NPS*

On the top.

kill. Acts of men are the greatest killers. Look to the mountains for your summer recreation, and the source of your inspiration.

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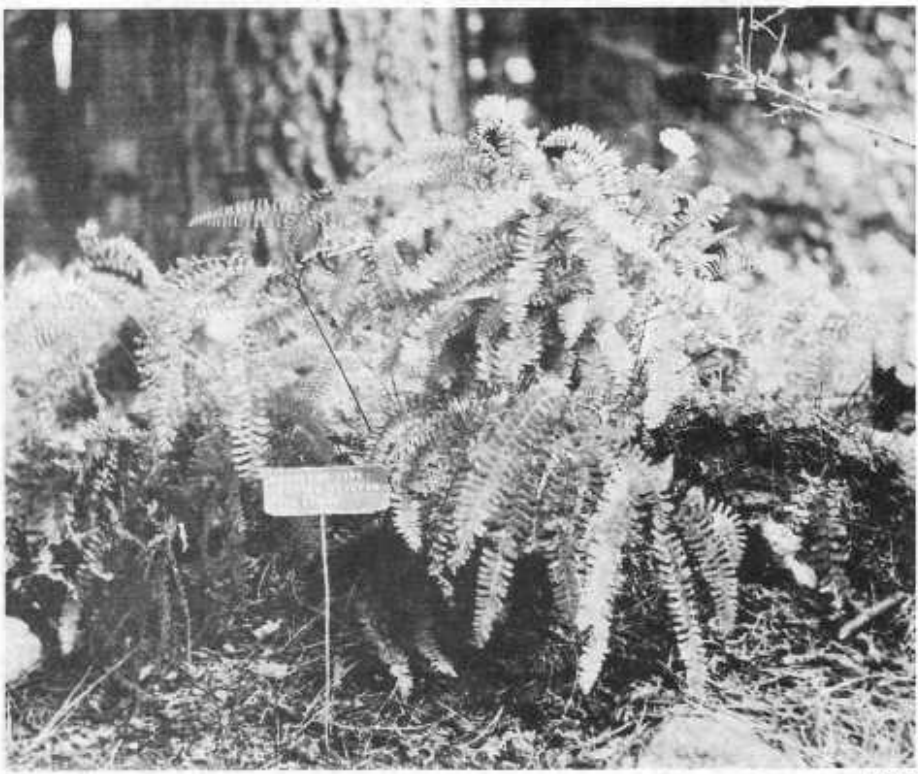
1. "Lightning and the Mountain," James R. Wilson, Robin Hansen. *Sierra Club Bulletin*, June 1949, Vol. 34, pages 27-30.
2. *Ibid.*
3. *Ibid.*
4. ."Still a Bugaboo," Robin Hansen. *Sierra Club Bulletin*, June 1949, Vol. 34, pages 68-73.

The question of responsibility of the federal government in situations such as this climb, where hazardous activities are undertaken under the guidance of government employees, has long been a cause of concern to park administrators. Pending further study the more hazardous guided trips, including Half Dome and the 3-day Mt. Lyell climbs, have been suspended.

—The Editor

FERNS IN YOSEMITE MUSEUM WILDFLOWER GARDEN

By Robert J. Rodin



—Rodin

Five-Finger Fern (*Adiantum pedatum*) recently transplanted into fern section of the Wildflower Garden at the museum in Yosemite Valley.

In the original plan of the Wildflower Garden behind the Museum in Yosemite Valley, one area was set apart for ferns. One of the original planners of the garden was Mrs. Enid Michael Benson. She for years supervised the work and brought in the trees, shrubs, flowers and ferns that we see in the garden today. In recent years since Mrs. Benson left Yosemite some ferns have died out and others have not always been labeled.

This summer an effort was made by the writer to bring in more species of ferns and their allies in one section designated for ferns.

A newly made path winds through this area, a waterfall and rerouted stream flow through to provide natural habitats for some of the water-loving ferns. Since ferns are found in a number of habitats (some require dry, rocky places, others prefer constant moisture), an attempt has been made in the garden to duplicate natural environments. For the rock ferns a mound of sand and rocks has been built up.

On this mound one genus with its various species are grouped to show visitors the variations in closely related ferns. The genus selected in this case is *Pellaea*, a genus of rock ferns living in dry areas at various elevations in the park. From the Arch Rock and lower elevations have been brought the Coffee Fern (*Pellaea andromedaefolia*) and the Bird Foot Fern (*Pellaea mucronata*), and *Pellaea brachyptera*. From rocky area equivalent in elevation to the top of Navada Fall or Sentinel Dome, have been brought Bridge's Cliff Brake (*Pellaea bridgesii*), and from higher elevations on Mono Pass and Mt. Dana, Brewer's Cliff Brake (*Pellaea brewerii*).

One of the newly re-introduced ferns is the Five-Finger Fern (*Adiantum pedatum*) (see illustration.) These delicate ferns are found always in protected places that have very few hours of direct sunlight, and sometimes none. They must be in cool, damp localities, often on rocky cliffs, facing north. In Yosemite one would find them in stream beds or rocky streams along the Four Mile Trail to Glacier Point, where they often are partly hidden under large granite rocks. They may be found in the spray at the base of some of our waterfalls.

New labels have been completed for the entire Wildflower Garden. These are easy-to-read and are made of laminated plastic with common and scientific names routed into the surface. Ferns and flowers will thus be more easily identified by visitors.

The present revival of the fern section has been correlated with a fern study and the preparation by this writer of a special issue of Yosemite Nature Notes on Ferns of the Sierra. Much of the field work was done in Yosemite National Park. Approximately 35 species of ferns and their close relatives occur in Yosemite region and will be fully illustrated in the forthcoming publication.

On your next visit to the Wildflower Garden behind the Yosemite Museum, stroll out into the far corner and observe and learn some of the names of common ferns you will see beside Yosemite's trails.

FOSSIL-LANDSCAPE IN THE MAKING

By Mary V. Hood, NPS Collaborator

—*A. W. Hood*

Last August as we drove down the Lee Vining grade, we found Lake Ellery had been partially drained, so that the dam could be repaired. An old causeway across the meadow attracted our attention. Leaving the car we hiked to a rocky point that aforded a better view. A party of four caught up with us and, as the picture shows, took immediate advantage of the old road in their quest for the elusive trout.

Wherever the ground showed, willows were sprouting, but what intrigued us most was the pattern of the old stream bed as it had once wound its way across this miniature peneplane. We have driven across the Tioga many times, during the past thirty years, little suspecting this "fossil" landscape lay, safe from erosion under the blue waters of Lake Ellery.

WHAT IS NATURAL? COMPETITION, COOPERATION, OR BOTH?

By Marvin R. Koller, Ranger-Naturalist

In the month of July in the year 1958 I find myself in Yosemite Valley, far from my familiar Ohio haunts. It is a strange yet fascinating experience to mingle with my colleagues, the ranger-naturalists, who are well trained in the natural sciences. I am a sociologist and my background is in the social sciences. How can such a person fit in? Will I render the service to the visitors that they should have? These matters troubled me in my first few weeks of duty. Now that time has elapsed, the work of the ranger-naturalist seems like work I have been doing all my life.

This month, one hundred years ago, a great naturalist named Charles Darwin offered his theory of evolution to the world. His work, *Origin of Species*, remains a classic piece of literature and a high-water mark in the natural sciences. The key experience of Darwin was his service as a naturalist aboard H.M.S. BEAGLE which circumnavigated the globe on an historic cruise. The world became Darwin's laboratory and he painstakingly observed natural phenomena from coral reefs in the South Seas to modern man. Intricate details did not escape his searching mind. His notebooks were crowded with data about the movement of leaves or facts pertaining to the domestication of plants and animals.

The smallest details were finally summarized by Darwin into his theory of evolution. I paid a special visit recently to the LeConte Memorial library in Yosemite Valley. Here are housed the personal books of Galen Clark. Prominent in the collection were the works of Darwin.

The expressions of Darwin have entered into common usage through such terms "struggle for survival," "natural selection" and "survival of the fittest." Translated into modern language, we often hear about "the law of the jungle" or "the weak fall by the wayside."

The philosophy of Darwin has been applied even to human relationships. It is at this point where a sociologist can, perhaps, help you understand. As long as the thinking of Darwin stayed in the realm of the natural sciences, I could not presume to comment. However, the ideas of Darwin have been taken up by our society quite strongly by our emphasis upon the process of competition. Competitive sports, for example, have wide acceptance in our school systems. The business world highly favors competition as long as it is "fair." Individualism and the right to express one's self is held in high esteem.

Let me make it quite clear that I am not seeking to quarrel with Darwinian ideas of competition, struggle for survival, or natural selection. What I am trying to say is that too many persons have concluded that *the only natural process is competition.* They regard competition as a basic procedure in nature. They consequently regard any notion of cooperation as foreign to nature or to life.

—*Anderson, NPS*

Seedlings and Parents.

Many biologists have pointed out that Darwin did not pay as close attention to cooperation as he did to competition. Starting with the lower forms of life such as the staghorn lichen and working up to mankind, there is a story to be traced in the art of living together.

The staghorn lichen is not a case of parasitism but is an example of ***mutual*** living called commensalism. The fungii provide the structure or housing and the algae provide the living cells converting light and water to food.

How many of you have observed the younger seedlings standing near their gigantic parents, the older trees in the forest? Surely, here in the plant kingdom is an example of protection from too strong light, too much heat, or too strong winds.

I am not deriding or minimizing the work of competition in nature, but I do want to point out that the law of nature is not necessarily dominated by a struggle for survival. It was quite interesting to me to locate in the wonderful research library we have in the Yosemite Museum a work entitled *Plant Sociology*, in which the community life of plants was highlighted.

Within the animal kingdom, too, we find countless examples of mother-child or family care. Many animals have to secure their own food and forage for themselves, but not immediately. Visitors to Yosemite this year were quite excited to witness the case of a mother Stellar jay who fed her offspring in the nest atop the fire hose outside the door of the Old Village store. Throughout the day, she tirelessly tried to feed her wide-mouthed youngsters in full view of the curious public. Without such ***help*** or ***cooperation*** the youngsters would have perished.

Now let us carry this discussion to our final step, mankind's behavior. In this instance I feel on more familiar ground.

This summer I have concentrated upon the Yosemite Indians as my particular specialty. Like many preliterate societies, the Awaneechees were more cooperative than they were competitive. They worked *with* each other and not *against* each other. The women attended to the digging of bulbs and gathering of

—*NPS (from a painting)*

Indians spearing fish below Vernal Fall.

acorns while the men built the umachas and hunted the deer.

A good hunter never ate his own kill alone but *shared* it with others. Strangers were fed upon arrival despite the irregular eating habits of the Yosemite people. A cooperative trading relationship existed between the Awaneechee and the eastern Mono and Paiutes in which they exchanged acorns for obsidian, for arrow points and tools.

The pioneer spirit which built our society was not always competitive as much as it was cooperative. By banding together in great overland caravans they traversed rugged ground and met all hazards. Through the cooperative spirit of devoted and far-seeing men, the Yosemite Grant, the first of its kind in the world, occurred in 1864. It could never have happened if men did not know how to work together in common endeavor.

When I return to Ohio, I shall hear some of my students say, "Why should I work with the class? I'm here for myself. It is *natural* to compete. It is *unnatural* to cooperate."

I shall think back on my days in Yosemite National Park when I participated first hand in the efforts of the rangers, the ranger-naturalists, and a host of other persons who formed a cooperative team sincerely working to preserve and protect this invaluable heritage of the American people — Yosemite National Park.

What is natural? Of what does life consist? Life is competitive *and* cooperative. On this hundredth anniversary of Darwin's great work, these are my thoughts.

REMEMBER WHEN?

1903

You could walk across Hetch Hetchy Valley.

1924

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All mail orders should be addressed to, and remittances made payable to, YOSEMITE NATURAL HISTORY ASSOCIATION, YOSEMITE NATIONAL PARK, CALIFORNIA. Prices include postage, insurance, and on proper items, California State Sales Tax 3%, plus 1% County Tax.

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