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Henry Berrey

In Yosemite, the National Park Service intends to conduct three controlled burns in the Mariposa Grove late this summer. According to Steve Botti, the Resources Management Specialist in charge, the burns will occur over a ten-day period and are a part of the service's plan to rid the grove of an unnaturally vast and highly combustible quantity of forest litter.

Since about 1964, such management fires in Yosemite have been common and, for the most part, non-controversial. But recently, the National Park Service (NPS) has found itself under increasing "heat" to defend its burn policies as they relate to the giant sequoias. What has been primarily an ecological issue has become suffused with aesthetics.

The crux of the matter is that mature sequoias, including several named and "showcase" trees, have been scorched and fire-scarred by burning that is otherwise undeniably beneficial to the sequoia ecosystem. Critics believe that through an infant and experimental burn program, NPS managers are permanently damaging and impairing the beauty of the forest giants under their protection.

Though Yosemite's three groves of sequoias have been frequently under public and official scrutiny, the present center of controversy and the site of the most research regarding the big trees is the Sequoia-Kings Canyon National Park pair. A short history of burning in both the Yosemite and Sequoia regions provides a better



Burning the Sequoias

understanding of the current state of the issue in the Sierra Nevada.

Ancient Benefit of Fire

In the early 1960s, a forestry researcher, Dr. Richard Hartesveldt of UC Berkeley, began a study in Yosemite's Mariposa Grove on soil erosion and the effects of soil compaction. During the course of the research, Hartesveldt compared century-old grove photos with those of a current time. It was clear that there were surprisingly few young trees growing among the mature ones.

The NPS took note of this con-

dition and examined the likelihood that a long-time policy of fire suppression (hence no natural fires) was connected to sparse sequoia regeneration. In 1964, study was moved from Yosemite to Sequoia, when the Service contracted with Hartesveldt to conduct limited burning exercises in the Redwood Mountain Grove in Kings Canyon.

Over a twenty-year span of experimental burning, it became evident that fire indeed contributed to the germination of the sequoia seed and to the young trees' health and growth. Further, the mature trees suffered little

damage from the blaze, beyond scorching of the fire-resistant bark. In areas where there had been no reproduction during this century, experimental burning plainly created an environment hospitable to seed germination and tree growth.

It has been pretty well documented that as far back as 700 years ago, the Native Americans set fire to the forests in Yosemite Valley. Ethnologists put forth two reasons for the act, though there may be others. When the conifers were destroyed, the oaks, with more space and sunlight, then prospered producing greater crops of acorns, a principal source of nourishment. A second benefit of the burning was that when the willows were burned, the following year's second-growth shoots emerged straighter and more pliant, thus more useful in basket weaving.

Simply put, when and where natural fires—lightning fires—are continually suppressed, the forest understory, the underlying layer of lower vegetation, grows rampantly. This creates two unnatural and undesirable situations. The shade-tolerant trees, such as cedars and white firs, shelter the sequoias from sunlight, hampering, if not ending, their growth. Secondly, the accumulation of duff and litter reaches such proportions that, when ignited, a devastating holocaust is created that destroys all in its path.

By contrast, had lightning fires been allowed to burn and to reduce the forest litter at a tolerable pace, a more hospitable growing site for the sequoias would have

ECOLOGY VS. AESTHETICS

"In all sequoia burns, ecological values are paramount and are not to be compromised for aesthetic reasons."

—THE CHRISTENSEN PANEL



resulted and the overabundance of fuels reduced. The removal of litter from the forest floor exposed the mineral soil, made the more nutritious from the ashes of the burned duff. In addition, fire hastened the release of the sequoia seeds from the mature cones, which often remain closed in tree tops for as long as ten years; it also appeared that the hotter the fire, the more frequent was the seed germination.

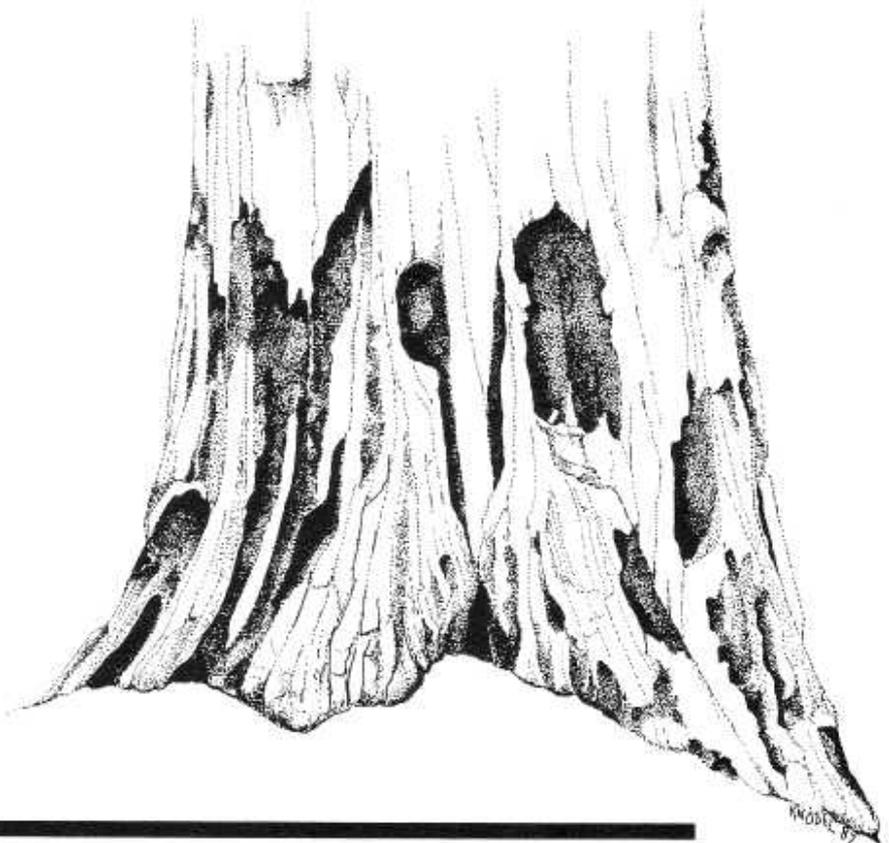
The Reintroduction of Fire

When it had been determined that the health of the sequoia forest improved with the presence of fire, the NPS reconsidered its management policies in sequoia forests, though the prospect of introducing fire in the popular groves caused worrisome problems. As a result, a prescribed burn program for sequoia groves was devised.

Prescribed burns are undertaken only when carefully defined conditions are met; for each prescribed burn there is a specific burn plan. Each burn area is surveyed. Scientific calculations are made of litter and duff accumulation, tree density, topography, and other variable factors. These measurements are given a mathematical value and an algebraic equation is created that shows how site characteristics will be affected by wind, moisture in the air, and other natural factors. When the time, wind, humidity and the several other factors are right, the fire is set.

Fires are ignited only when all conditions fall within the designated prescription, and when the resultant fire will be of the desired density. The method attempts to assure that the fire will be comparatively "cool" and will "creep," rather than become a roaring inferno. Prescribed burns are limited by natural barriers, including meadows and rock outcrops, and when a particularly dense accumulation of debris surrounds a sequoia trunk, it is pulled away from the tree's base.

Other precautions are taken



as well. For the Mariposa Grove burns that are planned late this summer, a crew of twelve persons, consisting of three resource management people and nine experienced NPS firefighters, will be assigned to monitor things. The fire will be watched around the clock by no fewer than three individuals.

The NPS Burns the Big Trees

Despite the diligence of the NPS in managing the burns, criticism of the program escalated in 1985. At that time, a burn in Sequoia's Giant Forest Grove resulted in the scorching of a half dozen big trees. A group of opponents including several environmental organizations and headed by Tiburon landscape architect, Eric Barnes, accused the NPS of professional vandalism and

The charred base of a giant sequoia.

characterized the program as "resource manglement."

Joining Barnes in the fray were at least two environmental giants. David Brower, a highly respected activist who has probably contributed more to the cause of conservation around the world than anyone living or dead, came out against the burning program quite forcefully. In a letter to Sequoia Park Superintendent John Davis, he wrote:

I realize the necessity of protecting the forest from the enormous hazard created by overprotection for the past one hundred twenty years. But when the trees that were the principal reason for a park's having been established in the first place — such as the sequoias in the Grant Grove, on Red-

wood Mountain, and in the various groves of Sequoia National Park — are severely impaired by the attempt to protect them, then the time has come for a drastic reappraisal of the program. We would therefore recommend:

1) that the program be slowed to a rate commensurate with the funding essential for protecting the principal exhibit in the course of attempts to restore the ecosystem;

2) that the ecosystem to be restored arbitrarily be set as the nearest possible equivalent of what preceded the invasion of White people and their industrial revolution;

3) that torching of the boles of the giant sequoias, or permitting them to be further fire-scarred, be halted immediately, and all necessary steps to prevent such damage be required to be taken.

"Protecting the beauty of the parks is just as important as maintaining natural conditions."

—JOHN B. DEWITT

And the late Horace Albright, who with Stephen Mather, was responsible for getting the National Park Service underway back in 1916, also became a critic of the NPS fire policy. In a letter to Barnes he wrote the following:

I have reread your letters, and tried to recall my protests against the adoption of the "controlled burning" policy when it was undertaken, and today I have written Director Mott my sincere recommendation that the policy be suspended, and given a comprehensive review before there is any more burning permitted. I have gone so far that this recommendation make clear that I have never favored "controlled burning" in national park forests.

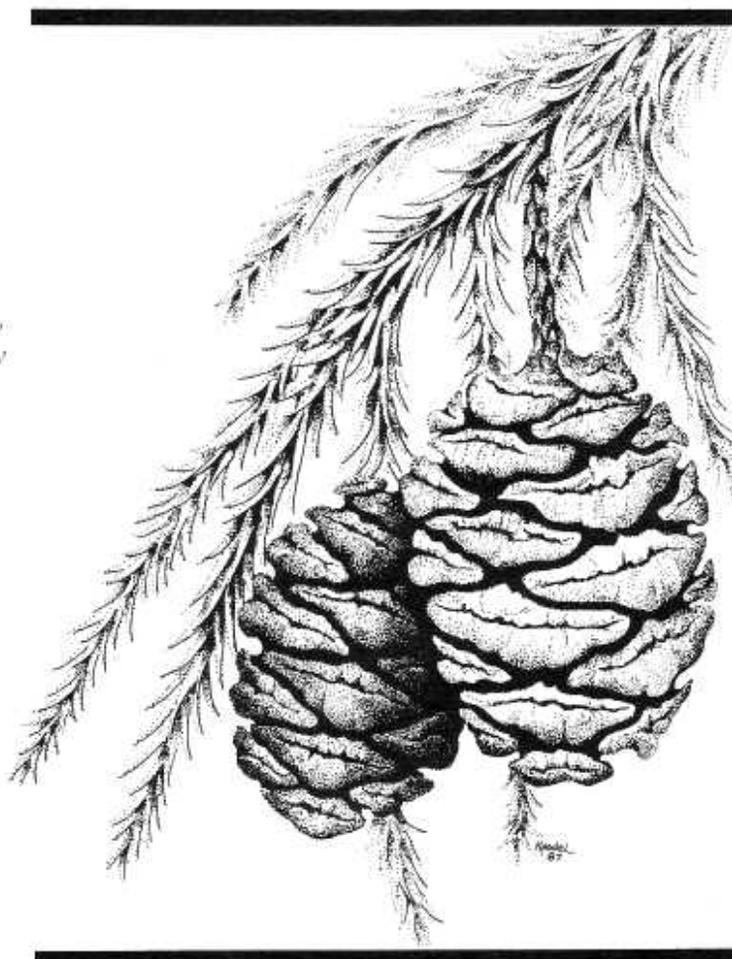
Prescribed Burning Program Reconsidered

While NPS managers contended that the program was a scientifically valid one and that the scorching of the sequoias resulted in no permanent damage to the trees (other than aesthetically), Park Service Director William Penn Mott suspended the burning in early 1986 and appointed a seven person committee to review NPS burning procedures and to make recommendations regarding the program.

The committee of forestry authorities was headed by Dr. Norman L. Christensen of Duke University. This "Christensen panel" was composed of college professors, scientists and a landscape architect. They conducted an independent study of the issue and also considered the submissions of various interested parties on the subject.

As the group most directly concerned with the well-being of the sequoias, the Save-the-Redwoods League communicated its concerns about prescribed burning to the panel. The following is an excerpt from the position paper the League submitted:

"Many people in the Save-the-Redwoods League and many visitors to the Sequoia Groves have



Fire is an important aid in the germination of sequoia seed.

voiced increasing criticism of the hot burns in the groves, the charcoal scarring of the great trees, the dirty ash-laden forest floor, the ugly charcoal appearance of these burns and the excessive smoke and air pollution in the park caused by the fires. Criticism has also been voiced that the intensive heat of some of these burns may be actually weakening the trees, impairing their life spans.

"The Save-the-Redwoods League wishes to state at the outset that it is not opposed to the prescribed burn program of the National Park Service in the sequoia-mixed conifer forests of the Sierra Nevada. We recognize that fire is a part of the natural process that created, and sustains,

these magnificent forests.

"Our concern is with the intensity of the fires that have been set as part of the fire management plans for the national parks of the Sierra. That intensity, and the apparent haste with which the program is being carried out, compel the League to urge caution in the future use of fire in the coniferous forests of these parks.

"That the Park Service has acted hastily is exemplified by the extensive acreage burned in the Giant Forest over the past seven years, and the choosing of this area of high visitor use for staging a major escalation of a program which is hardly out of its experimental phase. It seems to us that in the hurry to restore fire as an integral part of the natural environment, the Park Service has lost sight of one of the principal rea-

sons for the creation of these parks in the first place—the overwhelming public desire to set aside and protect the beautiful and awe-inspiring groves of Giant Sequoias. It does not seem appropriate now to mar these treasured groves excessively."

The 1987 Christensen Report

Earlier this year, the Christensen committee released its long-awaited report. The panel's findings are too extensive to print here. However, within the 8 page summary are several elements worthy of citation:

- Successful regeneration and survival of many sequoia mixed-conifer species depend on relatively frequent light to moderate surface fires.

- Fire suppression favors establishment and growth of shade-tolerant trees such as white fir and incense cedar. Competition from these trees limits establishment of other tree species and obscures vistas of the giant canopy trees in many areas.

- Localized areas may well have escaped fire sufficiently long to allow invasion of late succession species and accumulation of woody debris; fires that eventually occurred in these areas were undoubtedly more intense than average.

- There is no doubt that the ingrowth of shade tolerant trees during the period of fire suppression resulted in striking changes in the general appearance of many giant sequoia groves. The Leopold Panel of 1963 described the resulting "vegetative tangle" as "depressing, not uplifting."

- With respect to natural area management, Park Service managers came to recognize that in order to preserve particular ecosystems, the natural processes such as fire that maintain those ecosystems must be preserved as well.

- "It is not a goal to return (sequoia mixed-conifer forests) to some historic point in time, but rather to allow fire to operate as a process as fully as possible."



"A handful of resource managers should not dictate the future of our national parks."

—DR. THOMAS M. BONNICKSEN

► We recommend that a panel of appropriate experts be assembled to examine changes in our understanding of ecosystem structure and function since the Leopold Report and to evaluate



NPS PHOTO

current Park Service-wide policy in light of these changes.

► Prescribed burns planned for areas managed as natural ecosystems should be classified as "restoration fires" or "simulated natural fires." Restoration fires are carried out in order to manipulate fuel conditions judged to be "unnatural" whereas simulated natural fires are intended to maintain the primeval fire regime.

► The showcase designation [should] be continued for areas where scene management is of primary management concerns. Showcase areas should not be perceived as static "living museums," but rather as areas where simulations of primeval conditions may be influenced to a greater extent by scenic concerns.

► Individuals with education in landscape architecture should be consulted in the development of burn plans, especially in showcase areas.

► Judicious preburn cutting of live trees (especially young white firs) be permitted in showcase areas.



► In burn units . . . fuels should be manipulated to ameliorate unnatural extensive or widespread charring of dominant trees that might result from unnatural fuel conditions.

► We encourage the Park Service to continue its support of both in-house and collaborative research on fire in sequoia mixed-conifer ecosystems.

► In all cases, ecological values are paramount and are not to be compromised for aesthetic reasons.

(Association members interested in reading the entire summary may request a copy from the Yosemite Association office.)

In recommending that prescribed burning in the sequoia groves begin again, the panel suggested that the NPS remove

Typical burned over area after a forest fire.

some of the heavy accumulations of burnable materials apt to create hotter fires, which exacerbated charring and scarring of the big trees. As well, the visual impacts of the burn program are to be assessed regularly.

Fire with Finesse

The report has prompted a number of interesting and varied responses. Eric Barnes is not pleased with what he considers to be a "tidying-up" of an ill-conceived program. In a recent letter he stated his position for our readers:

"The public debate on park fire management and park purposes is important and on-going. Prescribed fire is a classic environ-

mental quality issue, one that cuts across ecosystems and jurisdictions. Burning affects not only the redwoods, and not only the national parks—but everything that will burn, and everything that breathes. Thus far, we are barely skirmishing on this regional issue, and heavily engaged only with the National Park Service.

"Fire with finesse" summarizes my own stand for skill and high standards in the difficult business of reintroducing fire to the scenic landscapes of the Sierra and other areas of California. But one phrase does not resolve, much less define, the relevant policy and technical questions. Park Service resumption of burning this summer does not resolve them either—but such resumption does help define the principal institutional difficulty.

"At the level of the individual

"A grove of giant redwoods or sequoias should be kept just as we keep a great and beautiful cathedral."

—THEODORE ROOSEVELT

parks, such as Yosemite and Sequoia-Kings Canyon, the proper mechanism for putting to rest the various questions would be to activate the analytic and deliberative process mandated by the National Environmental Policy Act. This would entail preparation and review of full Environmental Impact Statements for fire, vegetation, and related resource management activities in the parks. On this minimum requirement, park reformers (in and out of NPS) ought to agree."

John DeWitt, executive secretary of the Save-the-Redwoods League, has voiced his feeling that the NPS needs to exercise "great caution" in its resumption of the prescribed burning program. "We hope the new techniques will minimize the scarring and charring we have seen in the past," DeWitt said. "The NPS has an obligation to leave the parks—and those magnificent trees—unimpaired for all times."

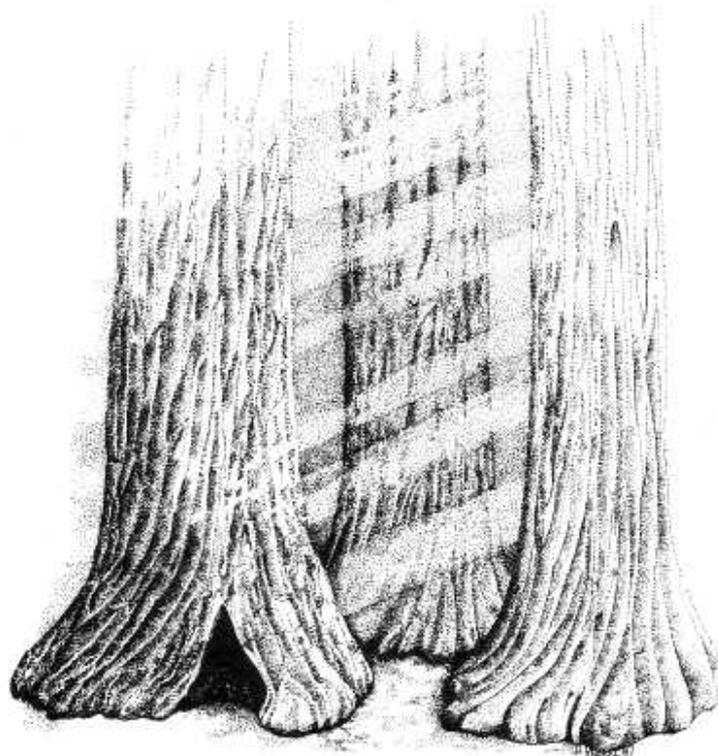
Ecologically Vital Program

The other side of the coin: While the Sierra Club appears to have made no formal, printed pronouncement on the subject, a call to Dr. Edgar Wayburn, Vice-President of the Club for national park matters, drew the following response on July 10, 1987: "The Sierra Club supports the National Park Service's policy in the matter of controlled burning."

The National Parks and Conservation Association reacted to the Review Panel's findings in part as follows:

NPCA's Southwest/California Representative Russ Butcher says, "The report is a sensitive, thoroughly professional analysis of his complex park management issue. Its outstanding recommendations, if accepted and implemented, should lead to enhanced burning strategies, practices, monitoring, research, interpretation, and funding for this ecologically vital program."

It is clear that the issue of prescribed burning within the sequoia groves of our national



Old Bachelor and two of his Three Graces.

parks is far from settled. Continued study and monitoring should help NPS managers as they go about their important work of insuring the survival and regeneration of these forest giants. Time will tell whether a compatibility can yet be reached between ecological management techniques and aesthetic considerations.

Much of the information in this summary of the facts pertaining to controlled burns in giant sequoia groves within national parks was drawn, quite liberally, from a story in National Parks, January/February 1987 by Dr. William Tweed. Tweed is a district interpreter in Sequoia National Park; National Parks is

published by the National Parks and Conservation Association. That organization, not incidentally, is the only such private body devoting its energies exclusively to national parks matters. — Editor

Henry Berrey who retired as Managing Editor of the Yosemite Natural History Association in 1985, works as a consultant to the Association on a regular basis. He has made frequent contributions to this publication. The pen and ink drawings illustrating this article are by Debra Knodel, a technical illustrator from the Bay Area whose real love is natural history subjects. Debra is a long-time Association member whose artistic abilities are evident.

New Assistant Superintendent for Yosemite

Barbara J. (B.J.) Griffin Superintendent of Castillo de San Marcos and Fort Matanzas National Monuments in St. Augustine, Florida, has been appointed the new Assistant Superintendent of Yosemite National Park.

John M. Morehead, Park Superintendent, said Griffin, who will assume her new post in early August, will be responsible for the day-to-day operations of the 1,190 square mile park. "Her background and experience, especially in administration and operations, will be invaluable."

An 18-year Park Service employee, Griffin began her career as a secretary in Richmond, Virginia and became the Budget Analyst for the Southeast Regional Office in Atlanta in 1973. In 1977 she was appointed the Regional Programs Officer overseeing the Southeast Region's \$35 million annual planning, design and construction budget. She was named Superintendent of Castillo de San Marcos and Fort Matanzas National Monuments in 1984.

Griffin holds a bachelor's degree in business administration from Mercer University in Georgia, where she graduated magna cum laude in 1976. She is a native of Shreveport Louisiana.

A New Look at the Origin of Yosemite Valley

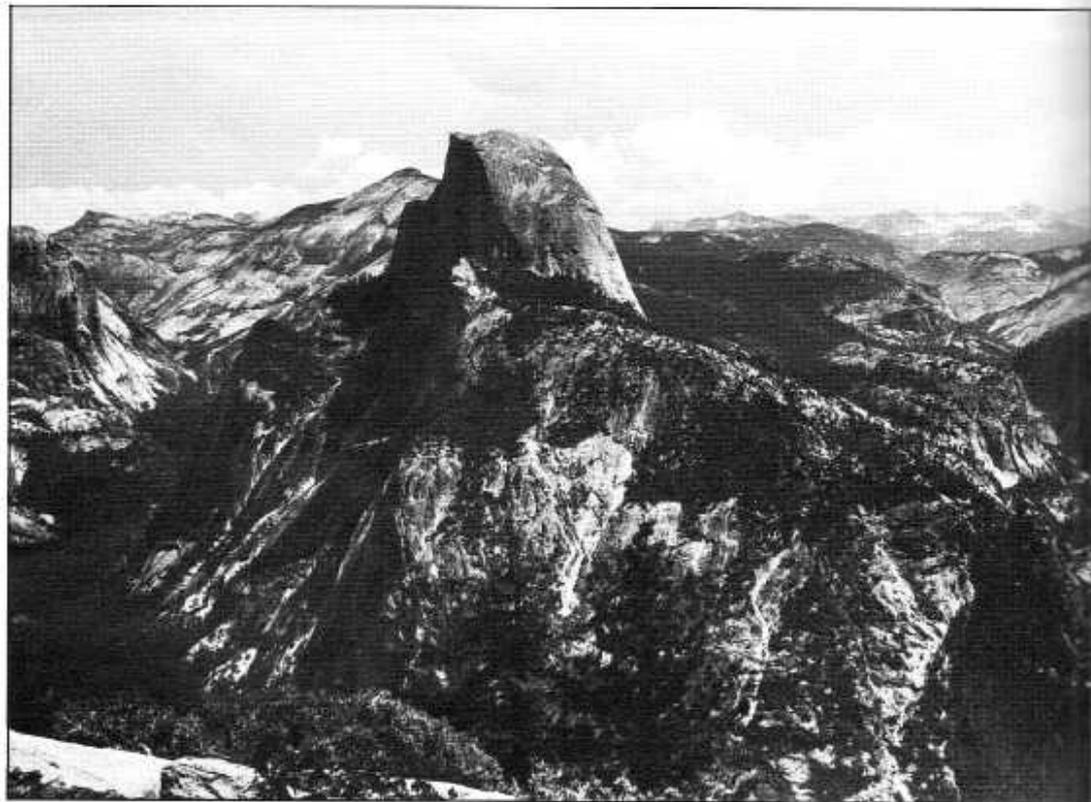


by Jeffrey P. Schaffer

In the Spring issue of Yosemite the author presented his plate-tectonic model of Sierran uplift, applied it to the Yosemite area in order to determine past and future heights of El Capitan, Sentinel Dome and Half Dome. In this essay Jeffrey Schaffer discusses his theory on the origin of Yosemite Valley, which differs significantly from all previous theories. — Editor.

This year has been a drought year, and a lot of streams have dried up. But what if the year had been the worst one ever, and even the Merced River dried up. If you were a first-time visitor to the park and were standing on Glacier Point, you would see Yosemite Valley below you with the dry river bed. Upstream you would see two canyons, a large, deep one between North Dome and Half Dome, and a smaller one to the right of Half Dome. Not seeing a stream or any waterfall, you might wonder: "What canyon does the Merced River descend?" "The big canyon," you'd probably conclude, "the one between the two domes." Looking at your map, you'd discover your error—it descends the little canyon. The big canyon—Tenaya—has only an average-size stream, and in years of normal rainfall, it dries up in late summer. So how did such a minuscule stream cut such a large canyon?

This question disturbed Francois Matthes, who early in this century produced a topographic map of the Valley, then proceeded to spend years determining how the Valley was created. He finally produced, in 1930, his U.S. Geological Survey Professional Paper 160, *Geologic History of the Yosemite Valley*, which became an instant



A Glacier Point view up deep Tenaya Creek's canyon, on the left, and shallower Merced River's canyon, on the right. Half Dome is in the middle.

classic. Matthes' explanation for why Tenaya Canyon was so large relative to the Merced River Canyon was:

"In Tenaya Canyon also the glacial quarrying was facilitated by joints, but in the Little Yosemite, which is underlain by extremely massive, undivided granite, the ice could only rasp and polish, and therefore the Little Yosemite, which is the path of the master stream [the Merced River], now lies, anomalously, 2000 feet higher than Tenaya Canyon, which is the path of a feeble tributary [both emphases mine]."

Matthes believed that Tenaya Creek, before glaciation, hadn't been very effective in carving Tenaya Canyon, that the bulk of the excavation had been done by glaciers. There is a problem here. Namely, stream excavation in the Yosemite area is usually proportional to glacial excavation.

Where streams have been effective in downcutting, ensuing glaciers have also been effective. It is therefore troubling to think that the ancient Tenaya Creek was ineffective, but that the ensuing Tenaya Canyon glaciers were very effective. A possible explanation for Matthes' hypothesis is that massive jointing developed with the onset of glaciation, so that only glaciers had the opportunity to excavate effectively. However, no evidence supports such a view.

There is additional evidence contradicting Matthes' hypothesis: glaciers weren't as aggressive as he asserted, and joints were not as prevalent as he envisioned. Tenaya Canyon glaciers, despite being up to 4000 or so feet thick, were ineffective in cutting down to meet the bedrock floor in eastern Yosemite Valley. There, sediments are up to 2000 feet thick, while in Tenaya Canyon just east of Mirror Lake, the sediments are only about a tenth that amount. Had there been a major fracture

in the canyon, the glaciers should have quarried deeper. But glaciers barely cut down into the bedrock, so today Tenaya Creek cascades from one resistant bench to the next. This is not what one would expect if there had been a major fracture along the canyon's floor. And where the canyon is deepest—the stretch lying between Clouds Rest and Mt. Watkins—glaciers failed to transform the canyon from a V-shaped river canyon to a U-shaped glacier canyon.

With respect to joints, I agree with Matthes that a master joint may lie beneath Tenaya Canyon's sediments, which occupy only the lower part of the canyon, the stretch along the base of Half Dome. If a major joint had extended from the Tenaya Lake environs all the way down to Mirror Lake, then Tenaya Canyon should have been quite straight, much like the linear canyons in the northern part of the park. Rather, the canyon meanders, and the length of its meanderings is close to that of those on the floor

of Yosemite Valley. It is as if Tenaya Canyon, like Yosemite Valley, had been initially cut tens of millions of years ago by a lazily meandering river.

And this is exactly what I propose the visitor at Glacier Point may have been right after all. In a radical departure from the conventional geologic story, I theorize that it was the Tenaya River, not the Merced River, which was the primary stream cutting preglacial Yosemite Valley. This river may have originated about 80 million years ago, as volcanism in Yosemite's near-crest lands was coming to an end. At its maximum length, the river may have originated near the Nevada border, flowed southwest through the site of today's Tioga Pass, turned west to cross ancient Tuolumne Meadows, angled southwest to the site of today's Tenaya Lake, meandered southwest down ancient Tenaya Canyon, and then angled west for a mean-

The floor in the east part of Yosemite Valley rests on as much as 2000 feet of largely glacier-deposited sediments. At the advent of glaciation, the river flowing through the Valley may have been only 300 feet higher than today's floor.



Tenaya Canyon, from a viewpoint 1/2 mile east of Mt. Watkins. Note Pywiack Cascade, which tumbles down a wall glaciers failed to erode. Note also the V-shape of the canyon below the cascade.

dering course through Yosemite Valley.

Such a proposal answers four previously unexplained anomalies. First, it explains Tenaya Canyon's great size—it has been actively carved for tens of millions of years, not just glaciated over the last million or so years. Second, it explains why the Merced River drops to feeble Tenaya Creek. Until relatively recent times, Tenaya Creek was actually a major river, and the Merced was merely a tributary, like Bridalveil Creek, dropping to it. Third, it explains how Yosemite Valley, easily the largest of the Sierran "Yosemites" (such as Hetch Hetchy and

NIP'S PHOTO





Kings Canyon), was seemingly cut by such a small stream, the Merced River, which above Happy Isles has a paltry drainage area of only 181 square miles. Unlike the major Sierran rivers, such as the Tuolumne, San Joaquin and Kings, the Merced River never had its headwaters originate on the present Sierra crest, let alone on ancient lands east of it. Rather, it originates on a crest that is west of the Ritter Range, which in turn is west of today's Sierran crest. The Tenaya River, much larger than the Merced, resolves the problem of the Valley's great size. Finally, the theory explains how the Valley's sediments, up to 2000 feet deep, could have been deposited in a geologically believable time, for the larger river carried much more sediment.

What happened to the Tenaya River? Its upper drainage was captured by the south- and east-expanding drainage of the Tuolumne River, an event I believe took place about 1/2 million years ago. There are several lines of evident lending credence to it.

First, the Tuolumne River is aggressively cutting into adjacent, southern drainage even today. The Middle Fork of the Tuolumne River has lost a good deal of its upper drainage to the Tuolumne. Until geologically recent times, Morrison Creek flowed west down the Middle Fork instead of northeast down to the Tuolumne. And in the geologically recent future, the stretch of the Middle Fork from near Harden Lake to its source at Lukens Lake will be diverted down to the Tuolumne.

Second, my plate-tectonic model of Sierran uplift predicts southeastern expansion of major river systems, and this is what you see. In the specific case of the Tuolumne River, which may have expanded the most, it was probably aided by a fortuitous circumstance not found elsewhere.

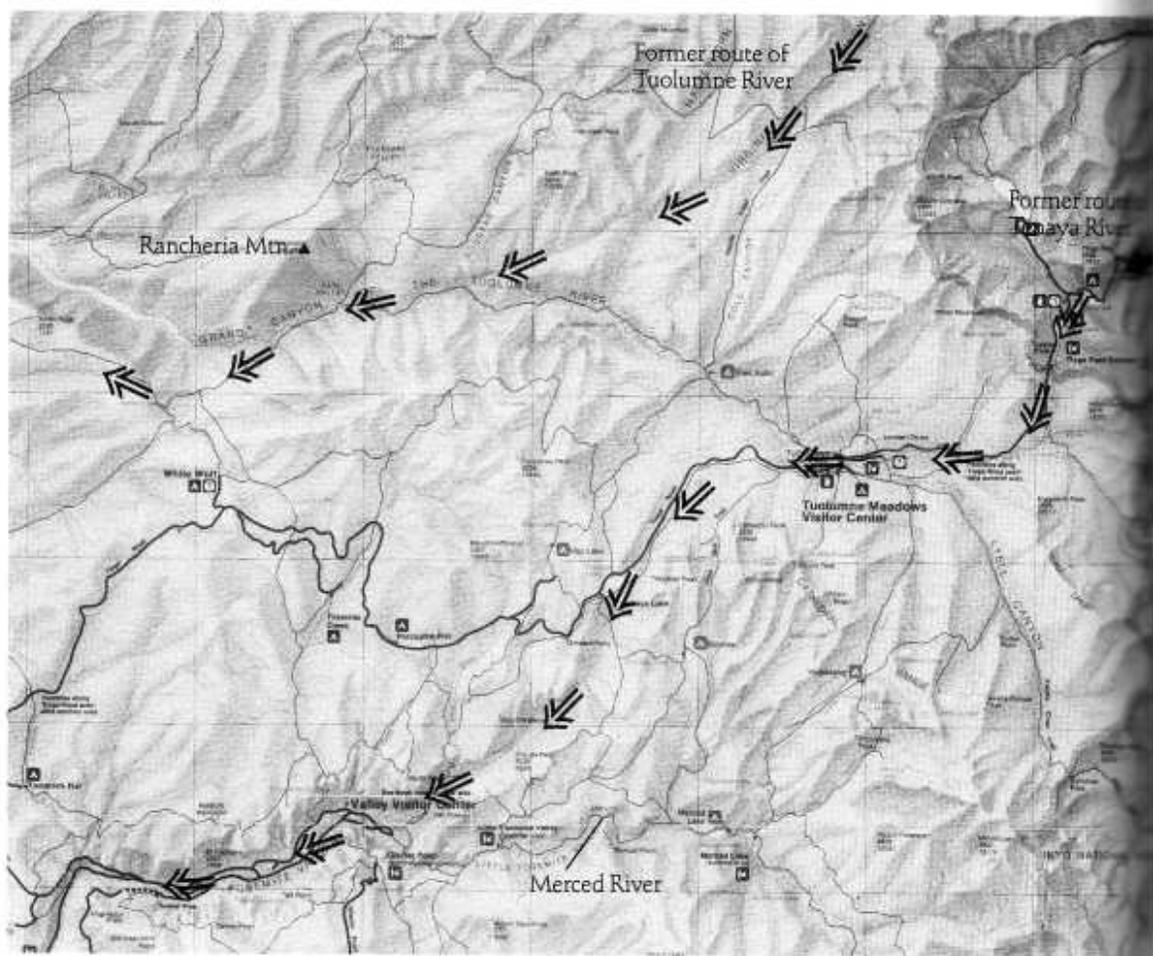
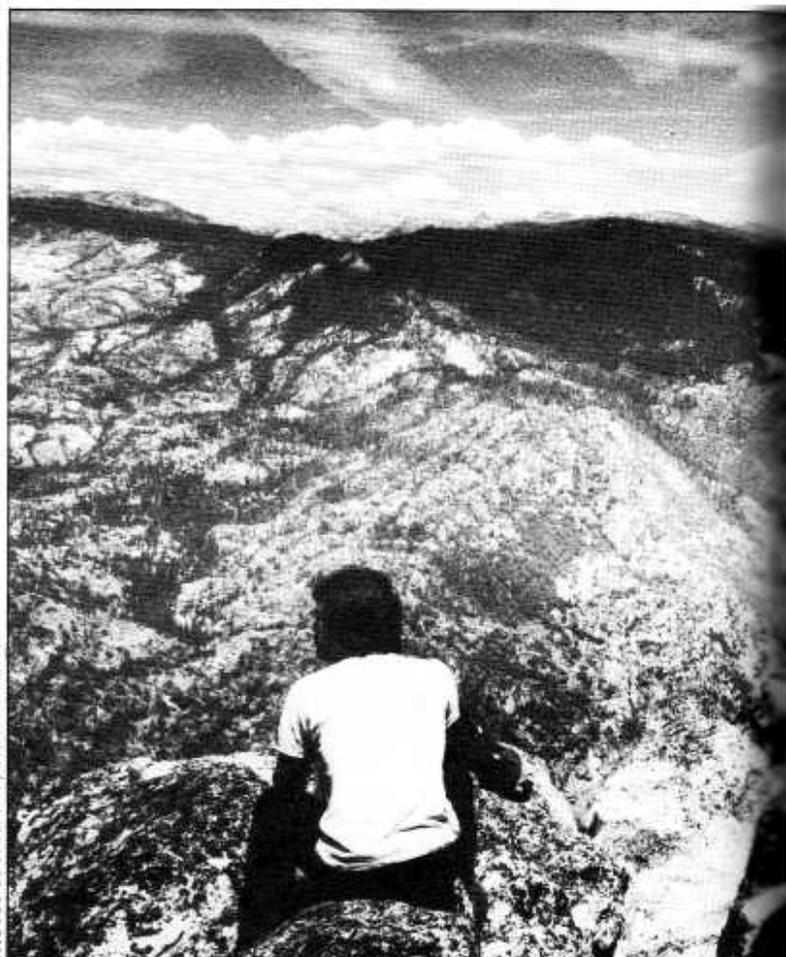
This map shows the possible former routes of the Tuolumne (top) and Tenaya rivers.

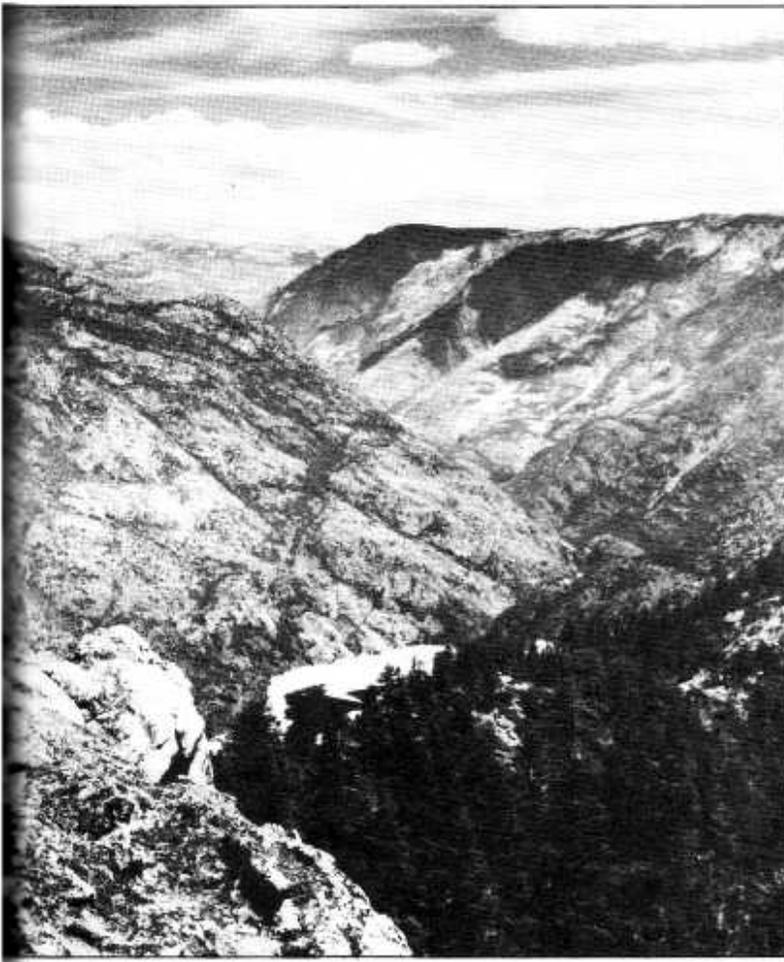
The thick sequence of volcanic rocks laid down about 20 to 5 million years ago in the northern half of the Sierra Nevada extended as far south as the Tuolumne River drainage. It appears that these volcanic flows and sediments forced the river south, for today the river divides the southernmost volcanic landscape (Rancheria Mountain) from a granitic landscape. This is probably not a coincidence.

Third, extensive volcanic sediments lie beneath the floor of the east edge of the San Joaquin Valley, where the Merced River

View east from Smith Peak's summit. The Grand Canyon of the Tuolumne River separates volcanic, forested Rancheria Mountain, just left of center, from granitic lands to the right.

PHOTOS COURTESY OF JEFFREY SCHAPIER





NIS PHOTO

Lukens Lake may someday flow directly to the Tuolumne River instead of indirectly to it via the Middle Fork Tuolumne River.

débouches from the Sierran foothills. Yet except for a tiny remnant, no volcanic rocks exist in today's Merced River drainage. How did such massive sediments accumulate? The proposed Tenaya River provides an answer. The Sierran crest began to develop about 3 or 4 million years ago, but before then, major Sierran rivers originated east of it. East of today's Tioga Pass, the upper drainage of the proposed Tenaya River would have been eroding away a predominantly volcanic landscape. The ages of its volcanic rocks match those of the eastern San Joaquin Valley's volcanic sediments.

In conclusion, if the Tenaya River did indeed exist, Yosemite Valley's geologic history may need to be totally rewritten. Matthes believed glaciers in the Valley's east part had cut through 1000 feet of bedrock to today's floor, then cut another 300 feet below it. My initial calculations indicate glaciers may have cut as little as 300 feet to the floor, and then, as seismic and well-hole evidence suggests, cut another 2000 feet below it. It will take years to quantify the Valley's geologic history, for if Matthes' major assumptions are wrong or questionable, geomorphologists are back to square one. Still, the challenge is surmountable, and I look forward to contributing to a new quantitative chronology of the Valley's geologic history.

Association's New Warehouse

Construction of the long-awaited Association warehouse facility was completed this spring, and the building has been occupied. Located to the rear of the Bagby Station administrative offices in El Portal, the 1500 square foot warehouse was designed to match the architectural style of the old train station.

The project was many months in development, and benefitted from the help of many people. Tim DeWitt was responsible for early design concepts and elevations, and Roger Stephens Engineering of Mariposa handled the drawing of final plans and preparation of building specifications. The building was constructed by Dave Clayton's RoDathe Construction Co., also of Mariposa. Financing for the project was extended by Mariposa's Yosemite Bank through its able loan officer, Robert Eckart.

Also helping along the way

were Thomas Jeffry and Jeanne Zolezzi of the law firm of Neumiller and Beardslee in Stockton, who prepared the building contract. Further assistance was provided by the National Park Service in Yosemite, notably Carl Vanderkarr, Larry Smith, Tom Armstrong, Dean Glenn and Ted Halliday.

The new warehouse consolidates all of the inventory of the Association in one location, and has proved to be a boost to the efficiency of the sales program already. The two-story facility has incorporated a modular rack storage system which both maximized use of space and minimized cost. Other features include a roomy loading dock, freight door and office space potential.

The final product is an attractive, roomy and functional building which has improved the Yosemite Association operation. Thanks are due to everyone who assisted with the warehouse development. Members and friends are encouraged to stop and visit the new building and to enjoy a tour of the facility.

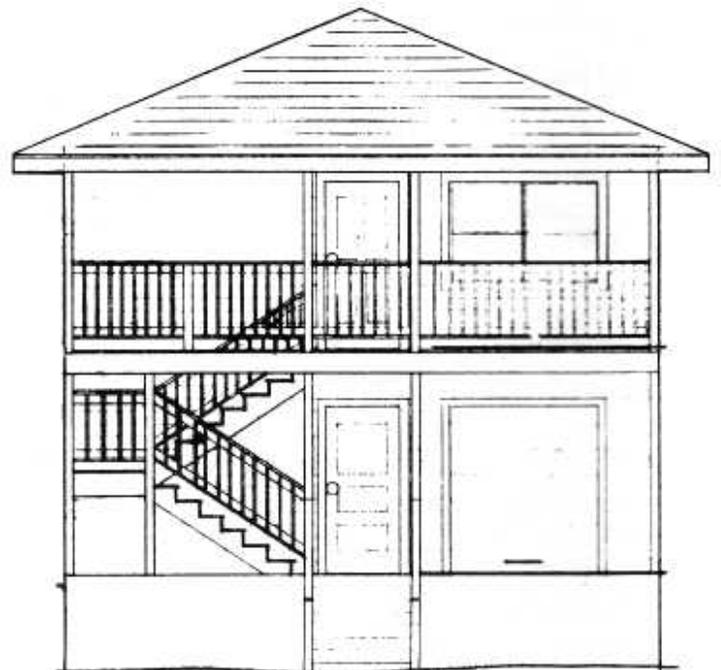


Plate-Tectonic Model Contested

Jeffrey Schaffer's article "Past and Future Uplift" (*Yosemite*, Spring 1987) has provoked the following response which we publish here in full. These comments are from N. King Huber, J. Alan Bartow, Malcolm M. Clark and Clyde Wahrhaftig, geologists with US Geological Survey, Menlo Park, California. — Editor

In the Yosemite area the Sierra Nevada is clearly an uplifted block of the Earth's crust, with a long slope westward to the Central Valley and a steep fault escarpment separating it from the country to the east. Tentative estimates on the amount and timing of uplift have been based chiefly on geologic evidence provided by abandoned Tertiary stream channels and lava flows.

In the Spring, 1987, issue of *Yosemite*, Jeffrey Schaffer poses important questions about the timing, rate, and amount of uplift for this part of the Sierra. Because he maintains that geologic field evidence cannot answer these questions, he constructs a plausible but conjectural "plate-tectonic model" to provide needed answers. His model is imaginative, but we think it is far too speculative to justify the precise elevations he gives on individual peaks. Such precise numbers are misleading. Many of them may be grossly inaccurate, because the assumptions that underpin the model are very uncertain; some of the assumptions are probably wrong. We agree with Schaffer that present geologic evidence does not supply the information he desires. However, unlike Schaffer, we believe that future geologic investigations will eventually lead to some of the answers he seeks.

Schaffer would like to know the *past* and the *future* elevation of any point on the Sierran crest between Mount Whitney and Lassen Peak in order to speculate on such subjects as Sierra glaciation, the evolution of Yosemite Valley, and the dispersal routes of giant sequoias. To construct a plate-tectonic model that pur-

ports to supply this information, he starts out with the premise that uplift of the Sierra Nevada is related to cessation of late Cenozoic volcanism in the range, which in turn he relates to the generally northward migration of the Juan de Fuca plate relative to the North American plate. From this questionable premise he proceeds to construct his model on

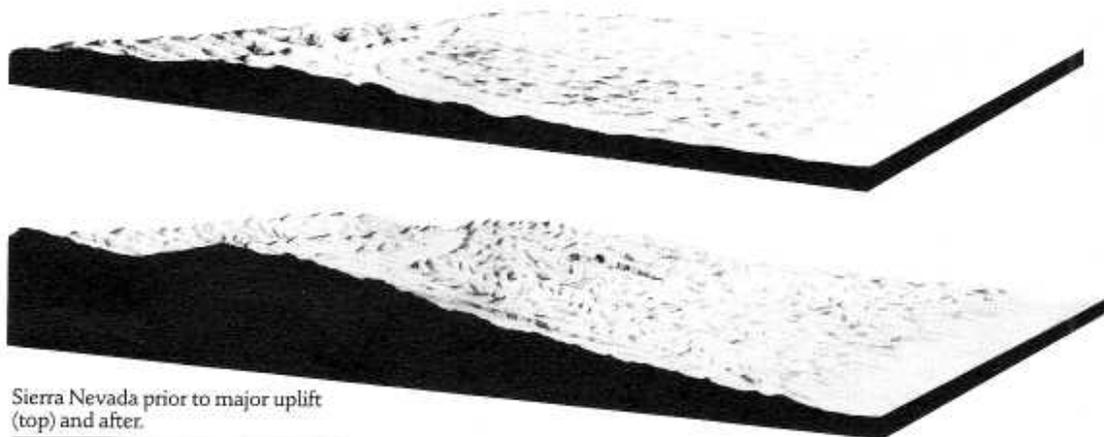
constant, uniform wave.

9. Uplift at Lassen Peak is about to begin.

10. Uplift at any point on the Sierra crest will cease 8.4 million years after it begins.

11. For a period of more than 16 million years (including 8 million years in the future) the migration rate of the Juan de Fuca plate is constant and the sole tectonic

North American plate. The balance of the theoretical rate of movement between the two plates is probably taken up internally within the North American plate by extension and strike-slip faulting east of the Sierra Nevada in the Basin and Range province (Minster and Jordan, 1978). Thus Schaffer's use of a rate of 36 mi/my for relative motion



Sierra Nevada prior to major uplift (top) and after.

what appear to be the following assumptions, including those just stated:

1. Cessation of volcanism and uplift of the range coincided with the northward migration of the southern edge of the Juan de Fuca plate relative to the North American plate.

2. The northward migration rate is 36 miles per million years.

3. Uplift of any point on the crest began precisely when the southern edge of the Juan de Fuca plate was at that same latitude.

4. Before uplift, elevations along the Sierran crest average 6,500 ft.

5. After uplift, elevations along Sierran crest average 14,000 ft.

6. Total uplift at any point on the crest is (or will be) a uniform 7,500 ft.

7. Uplift at Mount Whitney began about 8.4 million years ago and has just ceased.

8. Uplift propagates northward from Mount Whitney as a

factor controlling the timing and rate of uplift.

Schaffer provides no justification for any of these assumptions. We believe that none of them are sufficiently soundly based to provide data for his model construction. Their large uncertainties, added together, make meaningful calculations impossible. We will point out only a few problems as examples.

Schaffer's assumption of 36 miles per million years for the propagation rate is the theoretical rate of motion between the North American and Pacific plates, based on a world-wide geometric analysis of relative plate motions, assuming Africa to be fixed (Minster and Jordan, 1978). This rate is not based on any direct measurements between the two plates, and little more than half of this rate can be accounted for by migration of the Pacific plate along the San Andreas fault system marking the west edge of the

between the Pacific plate (and the trailing edge of the Juan de Fuca plate) and the Sierra Nevada cannot be justified from available evidence.

The 36 mi/my rate assumption, plus other unsupported assumptions, lead Schaffer's model into trouble. Minaret Summit is one example. His model implies that uplift at Minaret Summit began only 5.7 million years ago (mya), much later than the 25 mya indicated by geologic field evidence (Huber, 1981). Thus further speculations regarding geological or botanical events dependent on timing of uplift inferred from the model are automatically suspect. In addition, while geologic evidence suggests total uplift to date to as much as 11,000 ft at Minaret Summit, Schaffer's model will not even allow more than 7,500 ft of total uplift.

Timing problems aside,

Continued on page 13

Books of Interest

The following selection of books are works which chronicle the wide and varied scope of Yosemite and the High Sierra region, or the national parks generally. All can be purchased from the Association at the Yosemite Valley Visitor Bookstore, or by mail order using the order form on page 12 of this issue. Members of the Association are entitled to a 15% discount of retail prices.

National Park Service: The Story Behind The Scenery

Horace M. Albright,
Russ Dickenson and
William Penn Mott, Jr.
KC Publications, 1986.
#16890, paper, \$9.75
#16891, paper, \$17.50

This lavishly illustrated publication is more than a history. It is a lively narrative by Horace M. Albright, co-founder of the National Park Service; retired NPS director Russ Dickenson; and current NPS director, William Penn Mott, Jr. Their perspectives add a unique look into this important federal agency and the many valued and unique areas encompassed within the National Park System. These gentlemen's spirited account will heighten your enthusiasm for our national parks, and will provide you with a deeper appreciation of the importance of the National Park Service to us all.

Lands of Brighter Destiny: The Public Lands of the American West

Elizabeth Darby Junkin.
Fulcrum, Inc., 1986.
#12180, cloth \$13.95

National parks, national forests, wilderness areas, rangelands... these are the lands of the American public. In the American West, an area more than fifteen times the size of the six New England states is managed by federal agencies for us. In this book, Ms. Junkin guides you across these lands and explains the issues that are deciding the future of the nation's publicly owned lands. She shares with you her conversations with residents and those

political figures whose influence and dreams are the philosophic roots of future decisions about these western lands that are so vital to the nation's best interest.

Of Discovery & Destiny: An Anthology of American Writers and the American Land

Robert C. Baron and Elizabeth
Darby Junkin, editors.
Fulcrum, Inc. 1986.
#14290, cloth \$17.95.

As Americans, we have traditionally looked to the land to draw and forge our independent character as a people and as a country. In the land, we have sought our own reflection from that which functions independently of man: the "world of nature." *Of Discovery & Destiny* offers literary selections from seventy authors: naturalists, ranchers, political leaders and poets writing about our land, about nature and equally about ourselves as a people. This is a book that will introduce the reader to unfamiliar writers, and provide selections from old favorites.

Audubon Society Pocket Guide Series: Familiar Birds of North America (Western Region); Familiar Trees of North America (Western Region); Familiar Wildflowers of N. America (Western Region)

Ann H. Whitman, editor.
Random House, 1986.
#5846 (*Birds*), paper, \$4.95
#5848 (*Trees*), paper, \$4.95
#5847 (*Wildflowers*), paper, \$4.95
These new, easy-to-use, inexpensive and portable pocket-sized

guidebooks each cover 80 of the most frequently encountered species (of their respective subjects) that are found throughout the West. Each book begins with general introductory chapters, followed by the species accounts, arranged for quick and simple identity. Each species is illustrated with a beautiful, detailed color photograph, and on the facing page is accompanied by full descriptions, identification information, and habitat and range details. Excellent learning tools for beginning naturalists; good, quick reference guides for the experienced.

These American Lands: Parks, Wilderness, and the Public Lands

Dyan Zaslowsky and the
Wilderness Society.
Henry Holt and Company, 1986.
#17030, cloth, \$22.95

This authoritative and stirring assessment of our public lands is the first book ever published to give the history and to propose the future of each unit of a federal trust that today accounts for approximately one-third of America's landmass. The national park concept was the first attempt by a national government to preserve land for future generations. Since the establishment of the first national parks, hundreds of additional parks, monuments, historic sites, wilderness areas and wildlife refuges have been added to a vast system of public lands that also includes national forest and Bureau of Land Management holdings. The preservation of our nation's natural heritage has become a model throughout the world, but the

fight to retain public land unspoiled is never-ending, as this lively and dramatic history of America reveals. This book demonstrates that the preservationist idea did not come naturally; the myth of the land's superabundance dominated the thinking of Americans even after the frontier was officially closed, one hundred years ago. Frontier greed and carelessness, combined with business and political pressures for local control, continue to threaten our parks, forests and wilderness lands today. *These American Lands* assesses management policy within each unit and demonstrates why the citizen's vigilance is necessary today if future Americans are to look upon our natural legacy as the crowning achievement of the twentieth century.

Wildflowers of the American West: A Photographic Celebration of Nature's Beauty

Rose Houk.
Chronicle Books, 1987.
#18310, paper \$14.95

The wildflowers collected in this volume caught the attention of talented photographers and inspired Rose Houk's wonderfully evocative prose. These are flowers easily encountered and easy to appreciate. They grace our western lands, coloring the cliffs, bogs and rolling hills of the coast or blushing in the ethereal light of rainforests. They brighten the desert and canyon country with striking displays. Flowers, fragile and hardy, scatter across alpine tundras, lavish meadows in amazing abundance and sway among the long grass prairie expanses. Gloriously presented in 60 full-color photographs and paintings, this selection of western wildflowers evokes the beauty they give to the land, the pleasure they give to us, and celebrates the immeasurable gift they are. The author writes of the West's vast and intimate terrain, of the magnificent flowers that thrive or must struggle for life on this land.

MICHAEL DORONJINS



THE Yosemite CATALOG

G Yosemite Association Cap. Complete your outdoor wardrobe with this trendy item from the Association collection! It's the perfect hat for a hot, sunny day in the great outdoors—mesh fabric to keep a cool head, a generous bill to shade your face, and adjustable strap in the back to insure a good fit for everyone. All of this plus the Yosemite Association patch to let everyone know what your favorite organization is! Brown with white accent. #1600, \$6.00.

H Yosemite Association Mug. This distinctive and functional white ceramic mug has our logo and name imprinted in brown. Holds eight ounces of your favorite beverage. #1625, \$5.00.

I Yosemite Fund Mug. This mug is decorated with the newly-designed scratchboard logo for use in conjunction with Yosemite Association's fundraising effort. White with black design, eight ounce capacity. #1626, \$5.00.



J



Yosemite Association

L



dark brown and white Yosemite Association patch, the Pelican Pouch measures 8 x 5 x 2 1/2 inches. #1690, \$11.95.

L Yosemite Association Decals and Patches. Our association logo, depicting Half Dome is offered to our members in these two useful forms. Help announce your affiliation with our organization to others by purchasing and using Yosemite Association patches and decals. Patch #1635, \$1.50; Decal #1636, \$1.00.

M Yosemite Association T-Shirts. Comfortable, 100% cotton, light tan colored Hanes "Beefy-T" shirts are printed with the Association's Half Dome logo in brown.

Child sizes (short sleeve): small, #1650, medium #1651, and large #1652, \$7.05.

Adult sizes (short sleeve): small #1653, medium #1654, large #1655 and extra-large #1656, \$9.40; *(long sleeve):* small #1657, medium #1658, large #1659 and extra-large #1660, \$11.75.

J Yosemite Enamel Pin. Designed especially for the Association, our enameled metal pin is a work of art. Each of the 10 different glazes is hand placed and separately fired. The result, from William Spear Design, is an eye-catching and colorful piece. The metal enamel pins are relief engraved in a 7/8 x 2" size. #1695, \$11.95.

K Pelican Pouch, Wilderness Belt Bag. The Pelican Pouch is not only perfect for carrying field guides, but also offers instant access to all the small items that are usually buried in your pack—pocket camera, lenses, maps, or your favorite trail mix! The Pouch is designed with front snap fasteners on the straps. This allows comfortable positioning on your belt—even between belt loops; no need to take your belt off first. The material is high quality Cordura pack cloth with a waterproof coating on one side. Beige with the



Order Form

Credit card orders call:
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Yosemite Viewpoints

Letters to the Association

Yosemite Glory

Now in my 87th year, I am happy to enclose a check to add to your great fund. I do it with such happy memories of many trips to be with you—the first time in 1922 when we made the trip by trailer and camped in a pitched tent. I have a picture of myself standing alone on Overhanging Rock where it was naked of even a railing. It scares me now to even look at it tucked in our album.

In more recent years there our trips were in our camper. But now that I don't do much hiking, I'm delighted with an over-nighter—or even just a day in-and-out.

Yes, Yosemite, I love you dearly and want you to be main-

tained in all your glory and beauty for untold centuries to come.

Helen K. Rogers

Oakland

New Format Appreciated

I thoroughly enjoyed reading the winter 1987 issue of *Yosemite*. The last time I was in Spiller Canyon was in the late 1930's and 1940's. I believe I was actually at McClure's Pass on one occasion. I have enjoyed the whole area from McCabe Lakes north into Virginia Canyon. It is an area one can seldom enter without plans to camp out a few days so it was largely closed to local employees of YP&CCo.

I have appreciated the new format for *Yosemite*. It feels more like

the old *Nature Notes* we used to publish. You present much otherwise unavailable information relating to Yosemite and also use your opportunity to keep in touch with the membership.

Sterling S. Cramer

San Francisco

Editor's Note: Mr. Cramer was a member of the board of the Yosemite Natural History Association for some 40 years, many of them as Chairman. We are gratified by his comments.

A Regular Open House?

I enjoyed your Open House on Saturday, April 4, 1987. The topics covered were very interesting and informative. I wish, however, that I could have attended all of the

sessions offered. I hope the Association will consider making this an annual event and I am sure you will notice your Association member attendees growing every year.

The speakers were excellent, especially Jim Snyder, the Trail Crew Foreman. Seldom these days do we hear of anyone who really enjoys his/her job. Mr. Snyder does and it was nice to hear! I was very impressed last summer when I hiked up to Vogelsang from Tuolumne Meadows and mentioned to my companion how well executed the trail was. Now I know it was due to Mr. Snyder and his well trained crew.

I also enjoyed Dean Shenk's presentation on Bear Management in the Park. He had just the right touch of humor in his presentation.

The Wine and Cheese Reception and signing party was an excellent idea. Not only did we have a chance to meet the authors of a worthy new Yosemite book and to purchase it at member price, but it was an opportunity to speak with some of the other members of the Association and exchange some ideas as well as making new friends.

M.H. Georgi

San Jose

Peregrine Falcon Sighted

After visiting Yosemite 7-15-87, I have finally found time to read a copy of the "Yosemite Guide" for 6/22-9/07. I noted with interest the article about your group and its work to establish a Peregrine Falcon population in the Park.

The morning of 7/15, my sister and I, both long-time birders, sighted a Peregrine Falcon flying over Mono Lake. We both have seen Prairie Falcons, and readily distinguished this bird as a Peregrine. Needless to say we were ecstatic and so I wanted to pass this along. Congratulations on your work and I will be sending along a contribution soon.

Linda M. Hoffman

Portland

Model Contested

Continued from page 10

Schaffer's model is designed to calculate uplift at the range crest directly, independent of any geometric constraints inherent in a tilted-block range; the model considers only simple vertical uplift at the range crest. If indeed the range has been tilted westward more or less as a rigid block, to extrapolate range-crest calculations westward to points such as El Capitan or Half Dome, as Schaffer does, he must first establish the position and elevation from which to measure intermediate points. Until this is done, his method for calculating past and future uplift of selected localities on the western slope remains in serious doubt, even if his crest-elevation calculations were acceptable.

Of more fundamental importance, the late Cenozoic subduction-style volcanism that is part of his basic premise, was limited to that part of the range from the Sonora Pass area north. No evidence has been found for similar volcanism from Yosemite south to Mount Whitney and

beyond, and so there is no justification for applying his model to that part of the range, even if other problems did not exist.

Through the years geologists have gained from field evidence a rudimentary understanding of Sierra Nevada tectonics and have been able to put some constraints on the amount and timing of Sierran uplift—we still have much to learn. A more complete understanding of Sierran tectonics will gradually emerge, but we are convinced that it will be based primarily on interpretation of new geologic field evidence and derived models rather than extrapolation alone from wholly hypothetical models.

The dogmatic tone of Schaffer's article, noting that the reasons for his assumptions are too lengthy to be discussed in it, implies that it is a summary of substantiated research and that supporting documentation has been published elsewhere; this is not so. We have no desire to stifle or censor novel ideas. But we do maintain that to earn scientific credibility, their presentation must be soundly based, with fact and speculation clearly identified, and that they must be submitted to scientific scrutiny.

References

HUBER, N.K., 1981, Amount and timing of late Cenozoic uplift and tilt of the central Sierra Nevada—Evidence from the upper San Joaquin River basin: U.S. Geological Survey Professional Paper 1197, 28p.

MINSTER, J.B. AND JORDAN, T.H., 1978, Present-day plate motions: Journal of Geophysical Research, v. 83, no. B11, p. 5331-5354.

Editor's Note: The comments of these representatives of the US Geological Survey have been noted and shared with Jeff Schaffer. I think it is safe to say that the only point on which the parties agree is that they disagree. In defense of Mr. Schaffer, part of the criticism leveled above was prompted by my work as editor. In the original form of the tectonics article, the author made it clear that the model he set out was both conjectural and his own. In the interest of style and brevity, such explanation was excised during editing. There was never an attempt by Jeff Schaffer to pass off his model as accepted fact. Given the lively counterpoint which has developed, and not having the expertise or knowledge to analyze or understand the geologic nuances, I have chosen to print further articles by Mr. Schaffer. The reader should be aware that Schaffer's theories are both controversial and hypothetical.

Final Plans for 1987 Members' Meeting

The Yosemite Association's annual Members' Meeting will be held at Tuolumne Meadows on September 12 and 13 this year. Poet Gary Snyder will be our featured speaker, and a variety of outdoor events has been planned as usual. A large number of members has already registered to attend, and we look forward to a healthy turnout.



NPS Director William Penn Mott speaking at the last members meeting in Tuolumne Meadows.

Because of the demand for housing at Tuolumne, we conducted a lottery for the available tents for the first time this year. If you participated in the lottery, you should have received notice of your luck about the middle of July. Fortunately, we were able to extend the closing of White Wolf Lodge as well, so additional tents were provided for members there. If you would like information about the housing situation or haven't heard about your place in the lottery, please call our office.

For those of you without housing who wish to attend the meeting anyway, you can insure yourself a place at lunch on Saturday by sending a check made payable to the Yosemite Association for \$9.50 per adult and \$4.75 per child 9 years or younger. Mail it to Members' Meeting, PO Box 230, El Portal, CA 95318.

Registration for the meeting will begin at 10:30 am and continue through noon, and you may pick up programs and your lunch tickets at that time. Programs will be available for early arrivals at the front desk of Tuolumne Meadows Lodge. Lunch will be served at noon, and the meeting itself should get underway about 1:30 pm. Be sure to bring your own lawn chairs or blankets as seating will be on the ground. A Wine and Cheese Hour featuring a raffle for many valuable prizes will follow the meeting. Members will be on their own for dinner, and should be sure to make reservations in advance if they plan to eat at the Tuolumne Lodge dining room. On Sunday, a schedule of interpretive walks and other programs is planned.

At the meeting, members may nominate by petition candidates for the two board seats to be filled by election this fall. Petitions will be available at the registration area, and must be signed by 25 or more current members in attendance at the meeting. For petitions to be valid, they must be filed with the Chairman or the President by 5:00 pm on September 12.

We look forward to seeing many of our members at the meeting, and encourage your attendance. For further information, call Gail at 209-379-2646.

Members' Meeting Schedule

Saturday, September 12

- 10:30 am** Registration at Tuolumne Meadows Lodge
- 12:00 Noon** Lunch at Tuolumne Meadows Lodge
- 1:30 pm** Members' Meeting at designated site. Signs will direct the way.
- 4:30 pm** Wine and Cheese Hour featuring a prize raffle, following the meeting.

Sunday, September 13

A schedule of interpretive walks and programs and other activities. Details to be available at the time of the meeting.



DEBRA KNODEL

Foothills Deluged by Tortoiseshell Butterflies

This spring the foothills of Yosemite, including El Portal and the Yosemite Association offices, were literally overrun with California Tortoiseshell butterflies. These black and russet creatures made the air dark with their presence, and thickly covered buildings and trees.

Apparently, the California Tortoiseshell may be rare or absent from large parts of its range for several years. These dearths are followed by periods of enormous abundance, involving emigrations over immense areas. Biologists believe these cycles to be related to population pressures, host plant availability and climate conditions.



Polaroid Big Contributor to Yosemite Fund

Yosemite's fundraising

received a sizable shot in the arm recently when the Polaroid Corporation of Cambridge, Massachusetts, committed to major support of the Yosemite Fund. Polaroid's contribution has taken several forms.

In 1986, Polaroid introduced its new Spectra camera, and provided new camera purchasers a warranty card by which they could direct Polaroid to donate \$5.00 to the Fund. A check in the sum of \$25,000 was presented by representatives of Polaroid in March.

Another exciting development is that a one-hour documentary film for television about Yosemite and the people who frequent it, will be underwritten by Polaroid. Scheduled to be completed in 1988, the film is already in production. Filmmakers John Korty and Jon Else will be handling the project which is being coordinated through Robert Redford's Sundance Institute.

These programs are already benefiting Yosemite, and other possibilities for support are being considered by Polaroid. The exemplary contributions of the Polaroid Corporation to the Yosemite Fund are greatly appreciated and worthy of commendation.

In other fundraising news, many Yosemite projects are now underway or planned for implementation with assistance from the Yosemite Fund. Work on the Pacific Crest Trail has been ongoing this summer, as have been the Great Gray Owl and bighorn sheep research projects. This fall, two major undertakings are scheduled. In October, the San Francisco Conservation Corps, with support from Chevron USA, will be pioneering a meadow restoration project in Yosemite Val-

ley. Trails which have proliferated in some meadows will be eliminated, sod will be planted, areas will be revegetated, and primary trails built.

A second project in the planning stages for fall is the removal of the Bridalveil sewer plant facility which has been abandoned for many years. This spring, a group of demolitions experts from the US Army at Fort Ord did test blasts on the structure. They hope to return later this year to completely level the facility. Eventually the 5 acre site will be returned to as natural a setting as possible.

Yosemite Loses a Friend

When Byron Nishkian died on June 6, Yosemite and the Yosemite Association lost a long-time and devoted advocate. Over the years, Byron and his family grew to know the park well from border to border and especially the southern areas. The Nishkians had a summer home at Wawona from which they would start their treks into the backcountry.

In the early 1950's, Byron was elected president of the Yosemite Winter Club. From this beginning, he took an active interest in organized skiing and served as president of the Far West and National Ski Associations, and in



DON E. WALTER

various roles in international skiing affairs.

Byron was one of the founders of the Alpine Meadows Ski Area and eventually built a home there. Despite this, the family made many winter trips to Badger Pass and participated in the skiing and social activities.

In 1974, Byron became a board member of the Yosemite Association and in 1984, Chairman of the Board of the Yosemite Fund. Mr. and Mrs. Nishkian devoted a great deal of time to the organization of the Fund, to which

they made substantial personal contributions.

Though Byron's interests and activities were widespread and diverse, it is our belief that his strongest devotion was to Yosemite.

A Limited Edition

A handsome new publication will be released in a limited edition this fall as a cooperative venture of the Yosemite Association and the Sequoia Natural History Association. Entitled *Such A Landscape!*, the book gathers the diary, field notes, letters and reports of William Henry Brewer



from the summer of 1864. Brewer headed the California Geological Survey party which explored the Sequoia, Kings Canyon and Yosemite regions that year, and his writings provide an exciting and memorable description of this pioneer mountaineering effort.

The Brewer narrative is enhanced by 40 stunning black and white photographs of the Sierra Nevada by William Alsup who also edited the text. To take the photos, Alsup hiked the exact route the Survey travelled, retracing their steps. The results are impressive.

The publication is limited to only 500 copies and is designed and printed letterpress by Susan Acker at the Feathered Serpent Press. The photographs are printed duotone by Phelps-Schaefer Litho-Graphics.

Available in November, 1987, *Such A Landscape!* is 10 1/2" by 11 1/4", 124 pages with 41 photographs and will sell for the pre-publication price of \$100.00 or \$125.00 after release. Shipping is \$3.00, and California residents should add 6% sales tax. To reserve your copy, call or write our office: PO Box 230, El Portal, CA 95318, (209) 379-2646.

New Members

We would like to welcome to the Yosemite Association the following fine persons who became members within the past three months. Your support is greatly appreciated.

Regular Members

Prof Mel Aamodt, Francisco & Maria Aguayo, Alan Ahlstrand, Kathy Andeway, W L Bill Armstrong, Michael Augustine, Nancy June Price Ballinger, Dorothea Bamford, Lila Basilio, Patricia Behm, Lucy Bentsen, Robin Beriman, Beatrice Bixon, Alice Bloch, Dorothy Blohm, Aum Joseph Bolton, Bruce & Shirlee Boselli, Barbara Brandis, Kira Branson, Wayne Brones, Chris & Debbie Brown, Peter Browning, David & Pat Buccello, Noreen Buckley, William Buckner, Carl & Mary Burden, Catherine E Burdett, Roberta Burton, Burton R Cary, John F Christensen, Brian & Mary Cleland, Carol J Cognata, Lee & Lorelee Connell, Dr Donald Corbett, Joseph Cribfield, Chris & Janet Delaunois, Linda Dolman, Mary Donahuen, Josephine Donley, J L Donovan, DeLores Douglas, Barbara Eniti, Don Fay, Evelyn & Bernard Finkle, Francis T Fitzpatrick, Tom & Sharon Fitz-Williams, Sandi Fon, Damien Fontaine, Robert & Rosemary Ford, Duane Frederick, Virginia Freed, Louise Freisleben, Laura Fuhrman, Esther C Fuller, Robert Gelsek, Scott

Given, Gail Gordon, Mary Gould, Niki Gousios, Patricia C Gregory, Fred C Gruver Jr, Rebekah Hanna, Ellen Harrington, Anthony Harris, Susan Haver, Cherie M Hawkins, Marion Hazzard, David B B Helfrey, Linda M Herald, Rodney Hill, Samuel Hoffman, Penny Hopkins, Don & Catherine Hopson, Bruce Hucakabone, Joan Hughes, Ken Hunter, DDS, D R Hutchinson, David Ireland, J A Jessick, Dale Jones, Kenneth & Judith Jones, Larry & Mona Jones, Michael Mary Jurach, Carol Kassner, Tom & Jeanne Kellogg, C L Keyes, Tom Kimple, Janet King-Goth, Wendy Kirkland, Bo & Janet Kirschen, Al Kisner, Patrick Kraemer, Judy Krensdorf, Deborah Landshoff, Helen Larsen, Lois Larson, H B & June Latting, Mr & Mrs Keith Lennox, Cindy Leslie, Mark & Guadalupe Levine, Carlotta Lopez, John & Nancy Louth, Richard Lui, Susan MacDonald, Richard & Rita Marshall, Sharon Marshall, Leslie Martino, Donna Mathiesen, Margaret McCarthy, Sharon McCarthy, Hugh & Debbie McDevitt, Richard McIntyre, Marilyn & Ray McKeever, Elizabeth Mendes, Richard Merker, Shara Miller, Jennie Moiso, Andrea & Carl Monsalve, Norma Moore, Anne Mosgrove, Vicki Mosse, Paul & Leslie Mulligan, Diane & John Nacol, Rev Mark E J Nolting, Amy O'Connor, Constance A Owens, Mrs S Logan Owens, Linda Passey, Christine M Pattison, Fernando Penalosa, Christine Perello,

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If you are moving, or have recently moved, don't forget to notify us. You are a valued member of the Association, and we'd like to keep in touch with you.

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