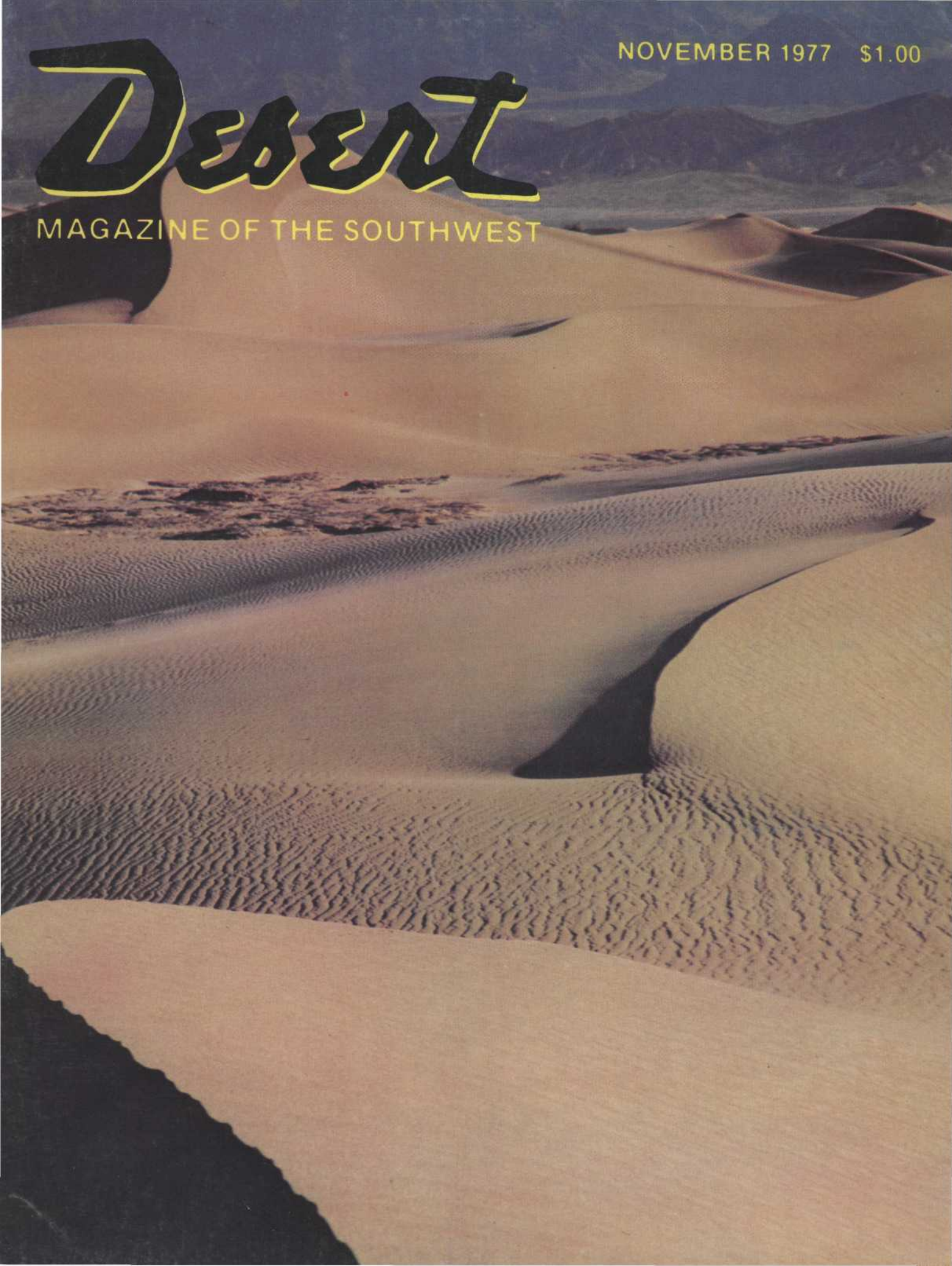
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WHERE TO FIND GOLD IN THE DESERT by James Klein is a sequel to **Where to Find Gold in Southern California.** Author Klein includes lost treasure tales and gem locations as he tells where to find gold in the Rosmond-Mohave area, the El Paso Mountains, Randsburg and Barstow areas, and many more. Paperback, 112 pages, $4.95.

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BALLARAT, Compiled by Paul Hubbard, Doris Bray and George Pipkin. Ballarat, now a ghost town in the Panamint Valley, was once a flourishing headquarters during the late 1880s and 1900s for the prospectors who searched for silver and gold in that desolate area of California. The authors tell of the lives and relate anecdotes of the famous old-timers. First published in 1965, this reprinted edition is an asset to any library. Paperback, illustrated, 98 pages, $3.00.

BACK ROADS OF CALIFORNIA by Earl Thollander and the Editors of Sunset Books. Early stagecoach routes, missions, remote canyons, old prospector cabins, mines, cemeteries, etc., are visited as the author travels and sketches the California Backroads. Through maps and notes, the traveler is invited to get off the freeways and see the rural and country lanes throughout the state. Paperback, large format, unusually beautiful illustrations, 207 pages, $6.95.

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HELLDORADOS, GHOSTS AND CAMPS OF THE OLD SOUTHWESTby Norman D. Weis. The author takes you on a 7,000-mile tour of the Old Southwest, visiting some 67 ghost towns and abandoned mining camps, one never before mentioned in written history. 285 excellent photos. Hardcover, 320 pages, $9.95.

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THE CREATIVE OJO BOOK by Diane Thomas. Instructions for making the colorful yarn talismans originally made by Pueblo and Mexican Indians. Included are directions for wall-hung ojos, necklaces, mobiles and gift-wrap tie-ons. Well illustrated with 4-color photographs, 52 pages, paperback, $2.95.

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GHOSTS OF THE GLORY TRAIL by Nell Murbarger. A pioneer of the ghost town explorers and writers, Miss Murbarger's followers will be glad to know this book is still in print. First published in 1956, it now in its seventh edition. The fast-moving chronicle is a result of personal interviews of old-timers who are no longer here to tell their tales. Hardcover, illustrated, 291 pages, $7.00.

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LAS VEGAS [As It Began — As It Grew] by Stanley W. Paher. Here is the first general history of early Las Vegas ever to be published. The author was born and raised there in what, to many is considered a town synonymous with lavish gambling and unabashed night life. Newcomers to the area, and even natives themselves will be surprised by the facts they did not know about their town. Western Americana book lovers will appreciate the usefulness of this book. You don't have to gamble on this one! Hardcover, large format, loaded with historical photos, 180 pages, $12.50.

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Morning light on the sand dunes, Death Valley National Monument, California. Rippled and ridged in rhythmic sweeps, the dunes swirl like a turbulent sea, combed by untold centuries of wind. Photo by Josef Muench, Santa Barbara, California.

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A Peek in the Publisher's Poke

THIS MONTH *Desert Magazine* celebrates its 40th anniversary, and in researching material for this column, I ran across some moving words written by Randall Henderson 26 years ago. I'd like to share them with you.

"This month *Desert* starts its 14th year of publication. *Desert Magazine* was started in November, 1937, as a glorious adventure in a new field of journalism. And as far as I am concerned it has remained a glorious adventure for 13 years.

"Today, we go to press with this issue. Tomorrow we start screening and editing the material which is to go in the next issue—hoping we will be able to make it more interesting and helpful to more people than any previous number. That is our program—12 times a year. I doubt if there is an editorial staff on earth with a more fascinating field from which to draw material than we have on the Great American Desert. Any one of the fields we seek to cover—travel, recreation, mining, exploring, history, mineralogy, botany, wildlife, Indian life, art and poetry, books, lost treasure, personalities—any one of these subjects could supply material for a complete magazine every month. We try to give our readers new information and suggest new approaches to all of these subjects.

"Our goal simply is to publish a magazine which will be true and genuine. You never see pictures of glamour girls in bathing suits—"cheesecake" the reporters call it—in *Desert Magazine*. The people who appear in these pages generally are in their working clothes—they are the people who mine ore, or pioneer new land, or explore remote trails, or follow interesting hobbies, or pursue scientific study, or who have come to the desert with limited capital to re-establish themselves in the clear air and sunshine of a desert community.

"In the writing and editing of the material which goes into the pages of *Desert* we seek to emphasize a way of living which is wholesome and satisfying—rather than glamorous and merely soothing . . . out here on the desert we live close to the good earth. It is true the earth is very hot sometimes and quite barren in many places. But in such an environment one learns that happiness is something we create within ourselves, and that riches are not essential to the art of good living.

"And so, during the year ahead *Desert* will take you and the other readers along new trails, not to the palaces of the rich, but to remote canyons where there is peace and beauty, to places where Nature's charm far excels any glamour that humans can create. And we will make you acquainted with people—humble people who live happy useful lives without much concern as to whether or not they will acquire great wealth, or get their names in the headlines . . . we will suggest where and when and how you can get away from the confusion of man-made society and find health and happiness in the sun and sand and solitude of the great desert land. We would like to take you behind the grim mask which the desert wears, and show you the beauty which lies beyond."

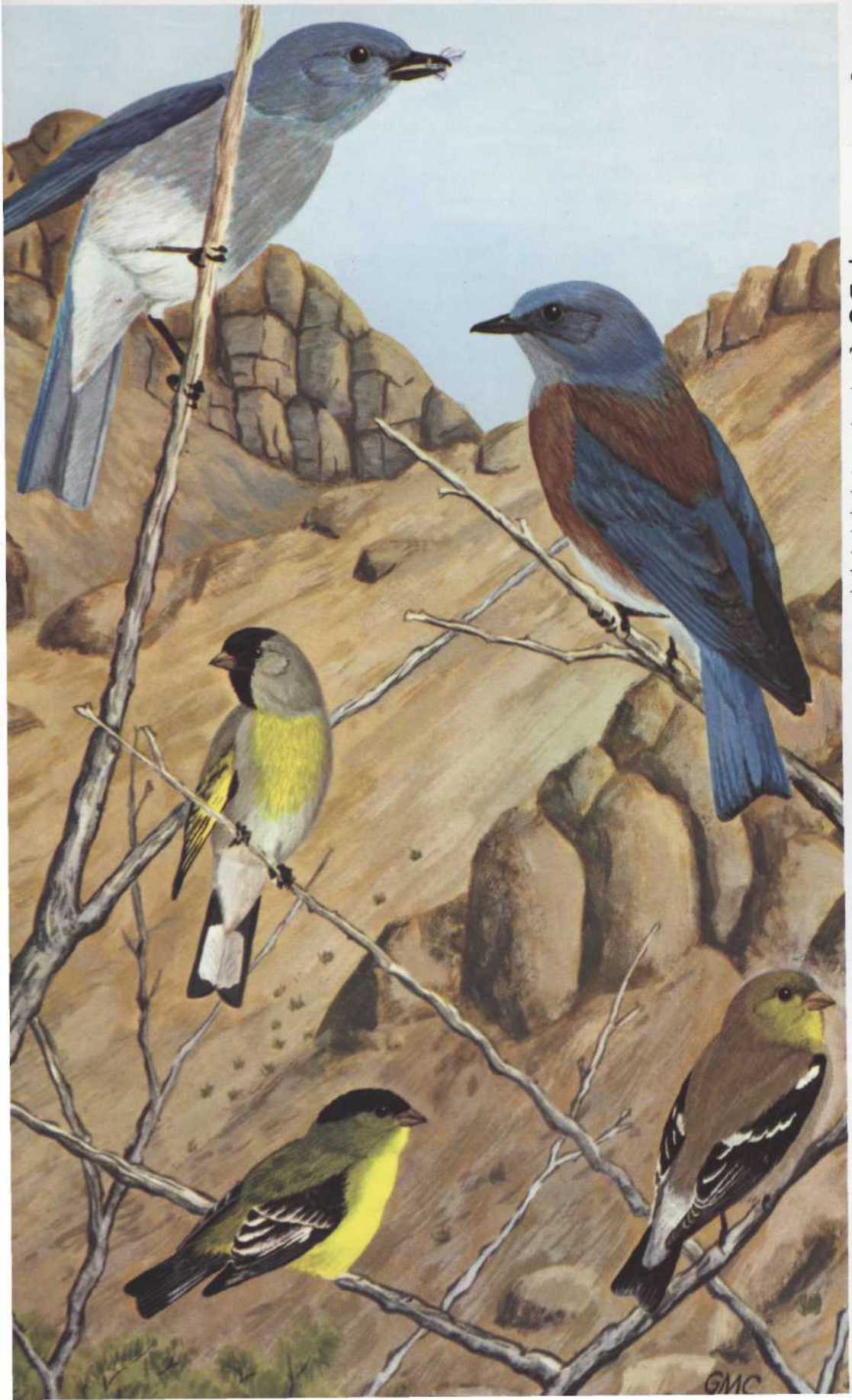
The goals and principles established by the magazine 40 years ago still spur us on, and it is with great anticipation that we enter our fifth decade of bringing the wonderful world of the desert to each and every one of you.

But the celebration is not ours alone, for it has been the continued acceptance and support of our readers that has made it all possible.

We thank you!

William Kruger

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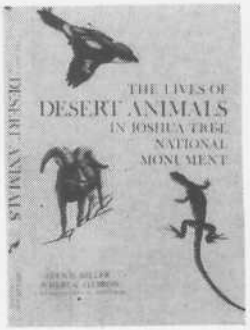
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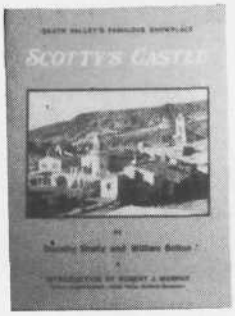


THE LIVES OF DESERT ANIMALS IN JOSHUA TREE NATIONAL MONUMENT
By Alden H. Miller
and
Robert C. Stebbins

Between 1945 and 1960 the authors of this book spent many days of each season studying desert life in and about Southern California's Joshua Tree National Monument. Here is the result of their studies—a description of the behavior and problems of existence for the 42 species of mammals, 166 birds, 36 reptiles and 5 amphibians in that area. Miller and Stebbins present the important characteristics of each animal and explain how it survives the conditions of a harsh and unyielding environment.

For everyone with an interest in the desert life of Southern California, this book will serve as an indispensable source and guide. In addition to the actual faunal analysis of the 147 resident animals of the desert, there are 149 illustrations, including 74 photographs, 58 black and white drawings, 9 maps and diagrams and 8 color plates. These feature the paintings and photographs of Gene M. Christman.

Hardcover, large format, a beautiful presentation. Although priced at $28.50, the University of California Press has made a special offering to *Desert Magazine* readers of only $14.98 through December 31, 1977.



SCOTTY'S CASTLE
By Dorothy Shally
and
William Bolton

Scotty's Castle has been the subject of innumerable newspaper and magazine articles ever since it was first conceived in the early 1920s. For the most part these writings concerned themselves with the project mainly as a manifestation of Death Valley Scotty's mythical gold mine, rather than delineating the magnitude and artistry of the unusual nine-building compound itself.

And while it is true that the desert hideaway gained national prominence as a result of Death Valley Scotty's bizarre antics (along with the unlikeliness of its austere location), the sumptuousness of its 14 bathrooms, 14 fireplaces, hand-carved beams, theater-type organ, and other unique features would rate uncommon notice in Pasadena, Santa Barbara, or even Beverly Hills.

This booklet represents the first comprehensive account of the Castle as a physical entity in its own right. Emphasis is on the history, construction and design of the buildings themselves. The Authors, William Bolton and Dorothy Shally, both National Park Service employees, are particularly well-qualified for the task, having been associated with the maintenance and interpretation of the property at the time the government acquired title in 1970.

Paperback, large format, profusely illustrated, $2.00.



VANISHED ARIZONA
Recollections of the Army Life of a New England Woman
By Martha Summerhayes

Martha Summerhayes came to Arizona Territory as the bride of an Army lieutenant in 1874. Her observations, based on intelligence, humor and, above all, the skill of a reporter, formed the basis of a little gem of a book, originally published in 1908.

Since then, several editions have appeared and each quickly sold out because *Vanished Arizona* is unique, the only book written by a female participant, rather frequently a complaining spectator. Nevertheless, Martha Summerhayes was part of the very cruel early history of what is now the Copper State. As such she was in an unusual position to record what happened, as it happened, and from the point of view of an Army wife.

At first, she liked neither the Indians nor the Army which had been forced into the rugged wilderness to combat them. Both she came to respect, albeit for different reasons.

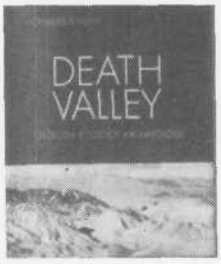
Her description of the Mogollon country, made famous two decades later by the Zane Grey books, her vivid account of trail riding and sweltering aboard a Colorado River steamer, and, particularly to modern desert residents complete with air conditioning, her memories of Old Ehrenberg. There, along the Colorado River near present-day Blythe,

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before electricity, ice or even the blessings of automobiles, she lived the most fascinating pages of her book.

Later came assignments in California, Nevada, again Arizona (but never Ehrenberg!) and Nebraska. The last third of the book has little to do with the Southwest except for a delightful chapter on Santa Fe.

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DEATH VALLEY: GEOLOGY, ECOLOGY, ARCHAEOLOGY
By Charles B. Hunt

Death Valley has long been a place of fascination for people the world over, and much has been written about it. Now however, all aspects of this famous (or infamous) desert have been brought together in this book by a distinguished scholar who culminates many years of research and professional writing on the subject of Death Valley by giving us the principal data regarding it with as little technical jargon as possible to make this unique desert of interest to the specialist and the lay reader alike.

The book describes the long prehistory and history of Death Valley, including a discussion of Indian occupation and the usefulness of tin cans, bottles and other litter for dating some of the historical sites, especially the old trails that were abandoned when packtrain travel was replaced by vehicular travel.

The geology of the bedrock formations that form the mountains and that underlie the valley floor is described along with the history of the great earth movements—the folding, faulting and volcanic activity—that have characterized the valley's geologic history.

Sources of water, mostly outside the valley and some far distant, are identified. We learn how the mode of occurrence and quality of water in the valley are controlled by local geology, and how the availability of water and differences in its quality are the chief factors controlling the plant geography, and how the plant geography, together with differences in the kinds of ground, has affected the animal geography.

In addition to the full description of the geologic and human history of Death Valley, there are sections that deal with mineralogy and geochemistry, and mines and mining.

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CORONADO NATIONAL MEMORIAL

by RUSSELL WAHMANN

IN A remote but beautiful corner of Arizona, next to the International Boundary, the U. S. National Park Service has set aside an area commemorating the first major exploration by Europeans into the American Southwest, over 200 years before the declaration of American Independence. Within sight of the very valley through which the expedition passed is the Coronado National





Memorial. Established on November 5, 1952, the Memorial is about 22 miles south of Sierra Vista, Arizona, and 30 miles west of Bisbee, Arizona. You may enter the Memorial from Arizona Highway 92 and then drive about five miles from a junction to the Memorial headquarters. Here you will see a well-displayed historical documentation of an amazing and harrowing journey.

Stand on 6600-foot high Montezuma Pass at the Memorial and look eastward down through Montezuma Canyon and into the San Pedro Valley. Imagine it to be a very warm day in June of 1540. There, stretching out a mile or so below you, is a caravan of courageous, daring men. In command of the expediton would be Francisco Vasquez de Coronado, 30 years old, an aristocrat from Salamanca, Spain, and friend of His Excellency Antonio de Mendoza, Viceroy of Mexico, in whose service he holds the rank of Captain-General.

There, you might see for the first time Europeans entering that bit of real estate that is later to become Arizona, U.S.A. Actually, the year before, in 1539, Fray Marcos de Niza, in the service of Mendoza and Coronado, was the first to enter the area. Although there is a monument attesting to his entrance into Arizona in the Valley of the San Ra-

Above: Though it has errors of costume and equipment, Frederic Remington's portrayal of the Coronado Expedition captures the flavor of the historic trek. Library of Congress photo. Below: Coati-mundi, local resident of Montezuma Pass in the Coronado National Memorial. Photo by author.



Left: View looking eastward from Montezuma Pass in Coronado National Memorial. Coronado probably marched north through San Pedro Valley.

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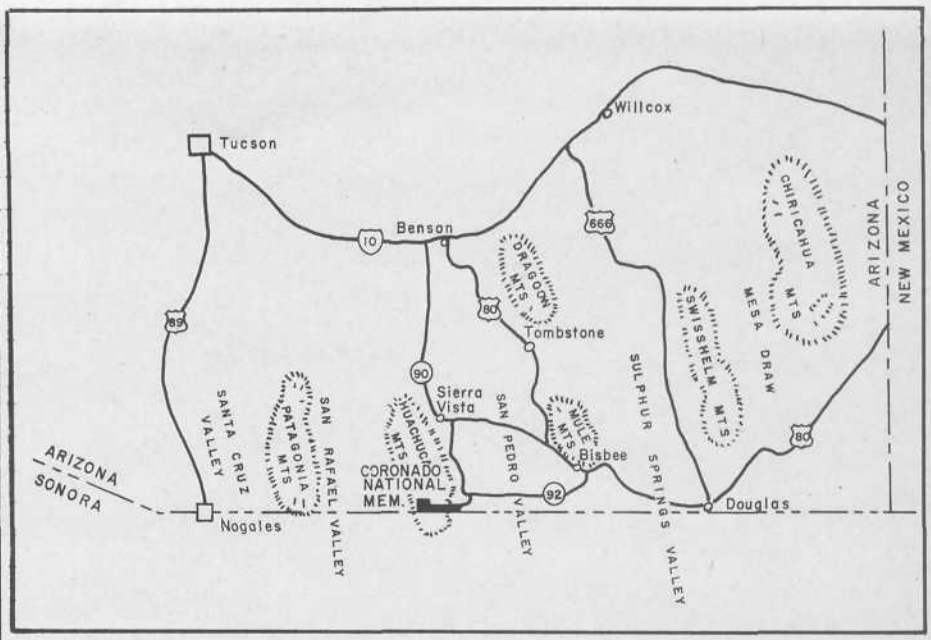
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fael at Lochiel, Arizona, a few miles to the west, de Niza's actual route is not known.

Spain had a rich colonial empire in the Americas. From southern Mexico to Peru, gold poured into her treasuries and large areas were opened up for settlement and conversion of the inhabitants to Christianity. Little was known of the area north of Mexico City, but a previous ill-fated expedition, survived by Cabeza de Baca in 1536, who wandered through the Gulf states and into northern Mexico, brought tales of a land to the north which had houses of many stories, adorned with doorways studded with emeralds and turquoise, and rooms containing gold implements and ceremonial trinkets. Through legend and fable this must be the Seven Cities of Cibola—so thought the Spaniards.

The rule of primogeniture in Spain, which directed inheritance to the older son, had consequences not anticipated, for its results often drove younger sons of the aristocracy to daring ventures and even revolution. Vasquez de Coronado, a younger son without inheritance, came to America with his brother Juan to seek their fortunes. Juan became an official in Costa Rica and Francisco cast his lot with Mendoza.

One has to understand the nature of those difficult times which caused these men to implant a curious, and often ruthless brand of Christianity on a new continent. These explorers were products of an Inquisition Catholicism. Their triumvirate of goals in the New World were Glory, Gold and God, in that order. Even at this very moment Hernando de Soto was rumored to be preparing an expedition in Cuba to move up the Florida peninsula (of which he was Governor—and a favorite of the Crown) to search for the fabled cities of gold. Mendoza certainly could not let de Soto be first to strike Glory and Gold! He authorized Coronada to organize his own expedition.

Coronado left Compostela, Mexico on February 23, 1540 with 300 Spanish soldiers, 4 priests, 800 Indians, and a herd of cattle and sheep. At Culiacan he organized an advance task force of 100 soldiers, with 4 priests and enough Indians to perform the camp chores, leaving the main army to follow at a slower pace. These were a hardy lot, these travelers, not to be underestimated in spite of the considerable baggage carried for the officers' comforts.

Following a route which approximates what is now Mexican Federal Highway 15, they moved into the Rio Sonora Valley, through Arizpe, and northward past what is now Cananea, Sonora into the San Pedro Valley of Arizona, which can be seen from our vantage point on the Huachuca Mountains. The expedition traveled northward until it reached the pueblo village of Hawikuh on the banks of the Zuni River. Its ruins are still visible in New Mexico near the Arizona state boundary and can be reached from New Mexico Highway 53 (Arizona 61).

At Hawikuh, Coronado met with not only disappointment, but armed Indian resistance. The Spaniards attacked and forced the Indians to abandon the vil-

lage. Well stocked with the pueblo's food supply, Coronado made this his temporary headquarters. Still concerned with the search for Cibola he sent his Captains out to explore the vast deserts to the north and west. Don Pedro de Tovar discovered the Hopi villages in northeastern Arizona, and Lopez de Cardenas, continuing westward, discovered the Grand Canyon of the Colorado.

In the meantime, acting on information from the Indians, Coronado decided to push eastward. Moving past Acoma, Coronado crossed the panhandle of Texas and the plains of Oklahoma still searching for El Dorado—Gold. Arriving finally, at a place in central Kansas called Quivira, he saw only the straw huts of the Wichita Indians. There was no Cibola. He knew now he had been misled by false rumors into thinking there was such a place. Standing on the high ground between the Smoky Hill River and the Little Arkansas River, disillusioned, exhausted and discouraged, he pondered the fate of his expedition. Word had reached him of the massacre of his supply garrison at Corazones which was to keep him supplied from Mexico. He had also seen many of his finest soldiers killed. But, more importantly, his dreams of bringing wealth to himself and Spain were shattered. "Regresar a Mexico," he ordered. "Turn back."

Coronado returned to Mexico City and faced a lawsuit instigated by a rival investigating his leadership. He spent the rest of his days in disillusionment, and while trying to clear his reputation did not realize that his efforts and hardships were not in vain. The vast lands which he and his men explored had provided a new knowledge about the geography north of Mexico, worth far more than the gold and silver which they sought. The Spanish introduced cattle and horses as well as European crops to the area. They introduced their religion and a characteristic style of living. Today's Southwest, greatly influenced by the Spanish and Indian cultures, and modified by the Americans, has developed a character of its own.

There are no overnight camping facilities at the Coronado National Memorial, but there are several picnic areas. Over 2,800 acres of interesting plants: Schotts yucca, sacahuista or beargrass which is not a grass but a member of the lily family, and cholla abound. A trail guide will make identification of plants and animals easier for you along Joe's Canyon Trail; three miles of wilderness trail climbs from 5300 feet to 6600 feet at Montezuma Pass and to 6880 feet at Coronado Peak. The less hardy can drive to Montezuma Pass. The species of mammals and birds here may be as strange to you as they were to Coronado and his men—as strange as the unknown land that awaited them. The National Park Service has compiled a list of over 84 species of birds that may be found there.

From your visit to Coronado National Memorial you may find an unsought treasure of your own. For while contributing to the memory of the great explorer, the Visitor's Center offers a unique area, so constructed that the many species of bird and flora may be observed in their natural habitat. You, the visitor, may experience an atmosphere of peace and nature's harmony not often found in our busy world. □

THE GEOGRAPHY

From Montezuma Pass one is provided an excellent view of what is known as Basin and Range topography. Look westward into the San Rafael Valley and you will understand the repetitive characteristic mountain range—valley—range—valley, etc. Beyond the San Rafael Valley can be seen the Patagonia Mountains. This topography was created geologically by folding, faulting and igneous intrusion. In addition to the mountain building, this has contributed to the economic wealth of the region where mining activities were carried out by Indians, Spaniards and Americans from about 1000 A.D. to the present time. The valleys, or basins here, are broad, alluvial-rich grasslands. Their general plain-like surfaces were formed through a combination of continual deposition of material from the mountains and erosion by sheet flooding, wandering streams, and wind action. The valleys are as much as 30 miles wide and some of the stream banks expose the alluvial soil as much as 40 feet thick.

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A Mexican freetail bat, clearly showing its large ears and tail. Because of possibility of rabies, any bat found on the ground should never be handled. Photo by George Olin, Ajo, Arizona.

MEXICAN FREETAIL BAT

by K. L. BOYNTON

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TWILIGHT IN cave country is a magical time—a time of brooding silence when shadows lengthen and creep and rocky crags rear their weird dark shapes against a fading sky. A time of mystery this: a hold-breath time when it seems anything might happen.

And then . . . suddenly a swirling mass of dark erupts from a hidden cave entrance—a great sinuous column that rises higher and higher into the twilight sky.

Smoke from primordial fires deep within the ancient earth?

No! A great exodus of bats! Thousands upon thousands of them, pouring from the cave entrance in a vast undulating smoke-like column some 30 feet wide that stretches across country for miles. This mighty exodus will go on for hours, the column forefront from time to time breaking up as groups of a few thousands wing off in separate directions.

Every night from early April to October this spectacle takes place at certain caves in Arizona, New Mexico and Texas, the bats leaving their underground daytime roosts to forage for night-flying insects. And back they come before daylight. A few at first, then the multitude, more arriving constantly, until a veritable rain of black bodies hurtle in 80 mph power dives into the cave entrance. When the morning sun lights the cave country once more, not a bat will be seen.

Who are these bats that dwell in such numbers in these caves in summer, disappearing suddenly one fall day and reappearing like magic one day the next spring?

These are the strange company of Mexican Freetails, officially dubbed *Tadarida brasiliensis mexicana* and popularly called "freetails" from their dangling tail, a distinguishing characteristic.

In the spring, these bats journey from caves in central Mexico to sites in the middle latitudes to give birth and raise their young, some traveling as far as 800 miles. Certain Texas caves have been their ancestral summer homes for hundreds of years. Others serve as stopover places for hordes moving on even further north to locations in New Mexico, Oklahoma and Kansas. For such a little handful of skin and bones a round trip of possibly 1600 miles would seem out of the question. Yet, in some years, an estimated 64 million of these bats take part in this Mexico-United States-Mexico jaunt.

And why not? The freetail is in fact put together for some of the fastest and fanciest flying in batdom, as zoologist Terry Vaughan found. True, its wing is fundamentally like that of all bats: made of skin laced with blood vessels and nerves, and suppported by a bony framework provided by the upper and lower arm, elbows, wrists and fingers, the bones of which have been greatly lengthened and separated. This skin wing connects with the furry sides of the body and the outside edge of the hind legs.

But the freetail's wing has important extras. Leathery and tough, its skin membrane, apparently much stronger than that of other bats, is braced with cartilage extensions of certain finger bones, and strengthened even further

here and there with masses of connective tissue. Highly developed muscles tense the membrane and keep it from being distorted in flight. In over all shape, the freetail wing is long and narrow, with a front to back curvature that offers little drag—a design remarkably like the high speed wings of falcons, swifts and swallows.

It also seems that the freetail's handsome big ears, besides attending to their all important role in the hearing department, have a definite effect on the bat's aerodynamics. First, when the bat is flying, their thick underside edges lie flat against the sides of its head—a big help in minimizing drag. Then, additionally, being very broad compared to their height, they are shaped much like short broad wings, and while of course they do not flap, they provide some life. This enables the bat's rather heavy head to be partially supported by the airstream—a great energy saver during a long hard journey. Thus, with even its ears helping out, the freetail is obviously well equipped for globe trotting. Still a puzzler, however, is how these bats know their way back and forth and when it is time to take off on their journeys.

Apparently a breeding season involving the whole population takes place in Mexico in February shortly before the big spring departure. The females are all pregnant upon arrival at the Southwestern caves in March, and congregate in vast nursery colonies. Most males don't bother to come north, the proportionately few that do make the journey form small groups in bachelor caves.

From the freetail's point of view, there's nothing like a cave in which to spend the day. It's a safe dark retreat whose rocky walls and ceilings offer cracks and crevices for clinging. The main trouble is that big as these nursery caves are, only so much roosting space is available and competition for it among the thousands of bats is keen, as the team of zoologists R. B. Davis, C. F. Herreid and H. Short report in their classic study of a maternity colony in Texas.

Freetail roosting style is to hook onto the ceiling with the feet and hang upside down. Packed in clusters of maybe 300 bats to the square foot, the sheets of bats virtually cover the ceiling and upper walls of the cave. A Mrs. Freetail, zooming into the cave after a night's foraging, tries her luck, backing into the first likely place. There's a good chance that the girls will shove over, freetails being surprisingly tolerant of each other. if so, she's set then, hung up for the day, her long wings folded up into neat bundles no longer than her forearm. But on the other hand, maybe nobody budges. She may give up and try elsewhere, or she may exert some force. With one foot on the rocky ceiling, the other in the fur of one bat, one thumb in the ear of the third and her other thumb in the nose of the fourth, she may shove harder and harder. Maybe everybody shifts over then. More likely one of the escounced, squeaking indignantly, lets her have it, nipping her anywhere that's handy. Ouch! She may leave promptly, or, annoyed, do some nipping herself and in the next few seconds squeaking free for all, may succeed in pushing everybody over and settle in herself. Or, if everybody in the cluster continues to resist, or in fact there is no room at all, she has to seek another place.

Inspite of its obvious drawbacks clustering has the great advantage of offering a means of temperature regulation, much needed since bats don't have very good internal heat control. To be able to fly they have to have a body temperature of 31 degrees C minimum. Zoologist Herreid, testing the rectal temperatures of bats in a cluster, found they ran as high as 37 to 41 C even when the outside temperature was 12 C. Thus, by huddling, the bats capitalize on cold cave conditions and still keep their internal temperature stabilized for flight. The moving around caused by jostling latecomers helps generate muscular heat, and if it is very cold, the bats fly around inside the cave, stepping up their metabolism. Conversely, when the temperature is too high as the season advances and thousands of youngsters are added to the already high adult population, daytime flying in the cave is a way to reduce body temperature, the extended wing surface a point for heat loss.

Ideal as a nursery site, the caves are the scene of a population-wide blessed eventing that takes place within a span of a few days. Eight-five percent of the thousands upon thousands of ladies in a Texas cave produced their one offspring apiece in the short period between June 3 and 16. Actually, delivery takes about one minute and a half. The youngster makes its debut rear end first, Mrs. Freetail clinging to the ceiling with one foot and a thumb and pulling it out with her teeth. Freetail newborn are astonishingly large, zoologist Henry Short finding for example that the little females average 2.4 grams, males 2.66 grams, chunky little things compared with the 11.78 grams weight of a full sized adult. In length, the newborn may be more than half that of its mother!

How a bat with such a small pelvis can deliver such a whopper was a puzzle until anatomist E. S. Crelin found the answer: nature thoughtfully loaded the bat's interpubic ligament with elastic fibers, making it a living rubber band. This stretches more than 15 times its length, thus enabling the newborn to pass through the very small birth canal.

Having made its bow to the world, the youngster is nursed and then deposited on the ceiling in a remote section of the cave. Not that it's going to be lonesome, for since the same thing has been going on all over, thousands upon thousands of other pink, hairless, blind youngsters are also being stowed there. Packed in almost continuous sheets, they're home already on the ceiling, having been born with a clinging know-how.

Mrs. F. Produces about 16 percent of her body weight per day in milk, a very high production. Perhaps this is an adaptation to the strange freetail feeding procedure, for since it is impossible to locate her own youngster in that scrambling mass of newborn, the female will accept the first two to find the places at her table. What with such high production and thousands of females landing for milk delivery, the youngsters all seem to get fed.

The young bats stuff themselves on about .85 grams of milk per day and this big intake, plus the warm temperature of the cave from radiation of adult bodies and the clustering of the young, produces rapid growth. Their eyes open in a couple of weeks and they're beginning to get their fur and businesslike permanent teeth. By the fifth and sixth week, their fur coat is complete and they're flying from the ceiling. Soon they're going outside foraging and by July are pretty good at catching their own insects. September finds them fully grown.

During the season's peak (about August) there may be literally millions of bats occupying a cave and how they can

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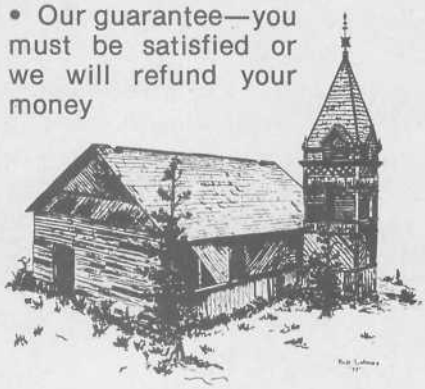


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perform their nightly in and out movements without stupendous traffic jams and subsequent mortalities is something of a marvel. Davis et al in their long observations under extremely difficult condition found the secret. It seems that what looks like a pell mell rush hour mess isn't at all, for the whole bat movement is actually a very orderly affair.

It's time to go out for dinner. O.K. Groups of bats begin to detach from the ceiling and start a milling circle flying 'round and 'round inside the cave. At the right moment (probably triggered by the degree of illumination in the sky outside, zoologist J. Twente thinks) a single bat goes out. At this signal, the circling bats stream out, other groups breaking loose from the ceiling, taking their vacated places in the mill to circle and leave the cave in turn.

While the bats are "winding up" in the milling inside, the first of the long column outside is streaming off across country. Carlsbad bats, for instance, may fly 40 or 50 miles to the Pecos River to forage. Fast fliers, they can make 60 mph at least, usually cruising at 40 mph. Built for speed, they can't, as zoologist Hal Black points out, fly slowly or hover. Seldom flying near the ground, they are quite apt to go as high as eight to ten thousand feet after the strong flying insects and the weak or flightless ones that have been carried aloft by updrafts.

Zoologists take off their hats to the freetails as first class insects consumers. Davis et al came up with the very modest figure: 50 million bats, 1.0 gr. insects per bat per night for 120 nights devour some 6,600 tons of insects in Texas alone. The team of R. W. Barbour and W. H. Davis figures three times that would be closer, as the freetail has a fast metabolic rate and probably eats much more to keep going.

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The night's foraging over, the returning bats must all get into the cave before morning. How do they do it so well? This time with a very orderly landing pattern. The myriads approaching the cave go into a kind of holding operation with about 10 large groups, up some 6,000 feet, circling the cave below. One group peels off and plummets down, each bat in a power dive, its half folded wings, as Harold Edgerton's photos show, acting as air brakes to slow its speed as it nears the entrance. Once inside, the bats go into an in-cave milling circle, peeling off to land on roosting sites. In the meantime outside and upstairs, group follows group in the high circling routine, plummeting down in its turn, until at last the bats have completed their incoming flight.

Not that the bats' summer in the United States is all a delight. Great horned owls are especially good at catching them, barn owls live in the cave entrances and dine on them at will. Red tailed hawks, cooper's hawks, peregrine falcons, sparrow hawks pick off any stragglers out by day. Various snakes live in the cave entrance, rat snakes being good climbers help themselves, raccoons, opossums, skunks eat the fallen bats.

The cave itself offers hazards. Not for nothing are these freetails also known as guano bats whose droppings make such excellent fertilizer. Tons of fecal matter rain down on the cave floor each season and the stiffling ammonia content of the air is so high that zoologists E. H. Studier and A. A. Fresquez investigated to learn why the bats did not die themselves. It turns out that the freetails retain a very high percentage of carbon dioxide in their system which neutralizes the alkali excess resulting from the increased blood ammonia levels. Such crowded cave life certainly provides ideal conditions for the rapid spread of devastating diseases but here again the bats seem to have a kind of population immunity that keeps things under control. The mortality rate is therefore low, the individual standing a good chance to make it to the ripe old age of 15.

Hence the millions around to take part in that yearly magic show: the comings-and-goings of the strange company of freetails. □

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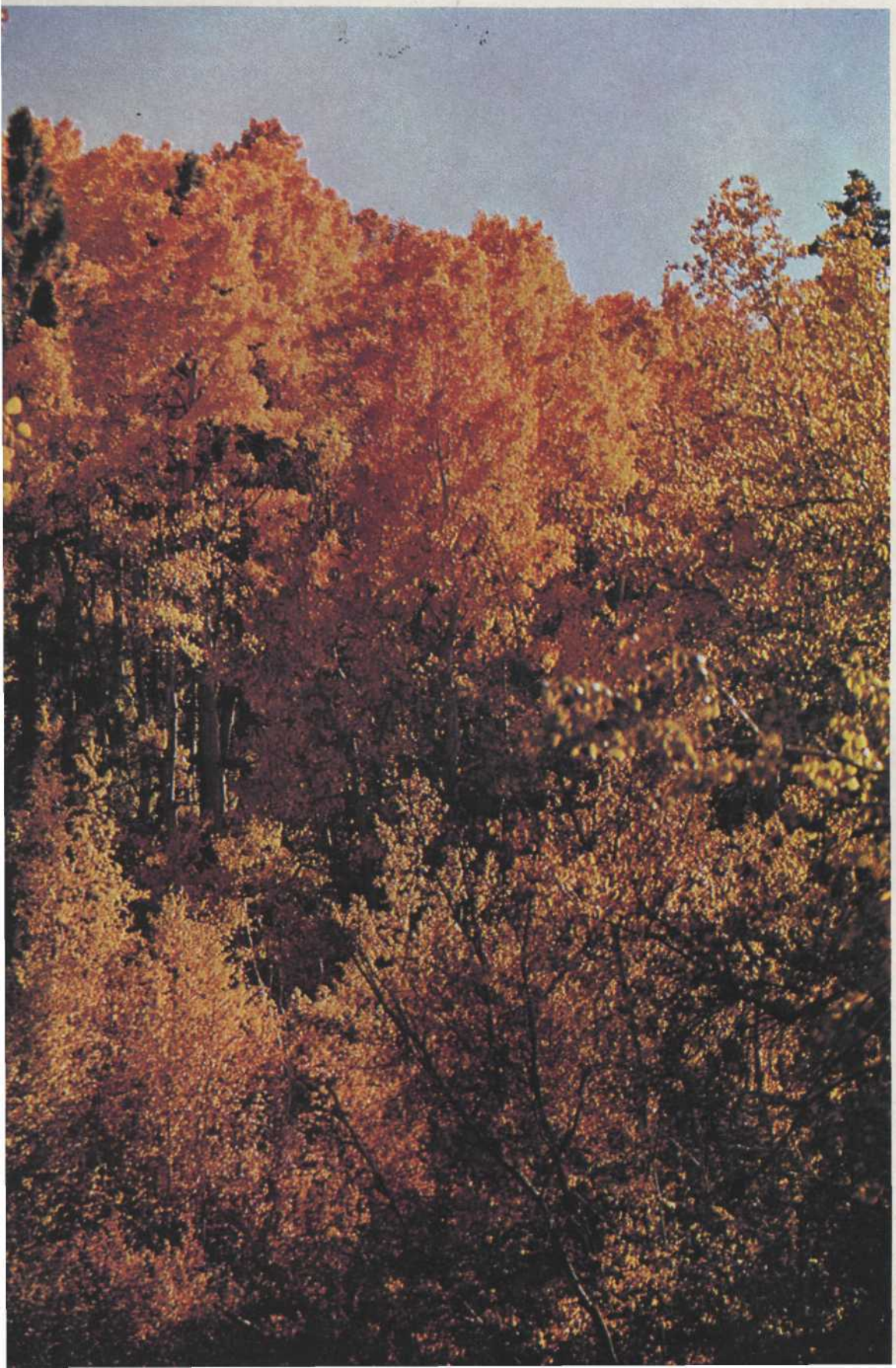


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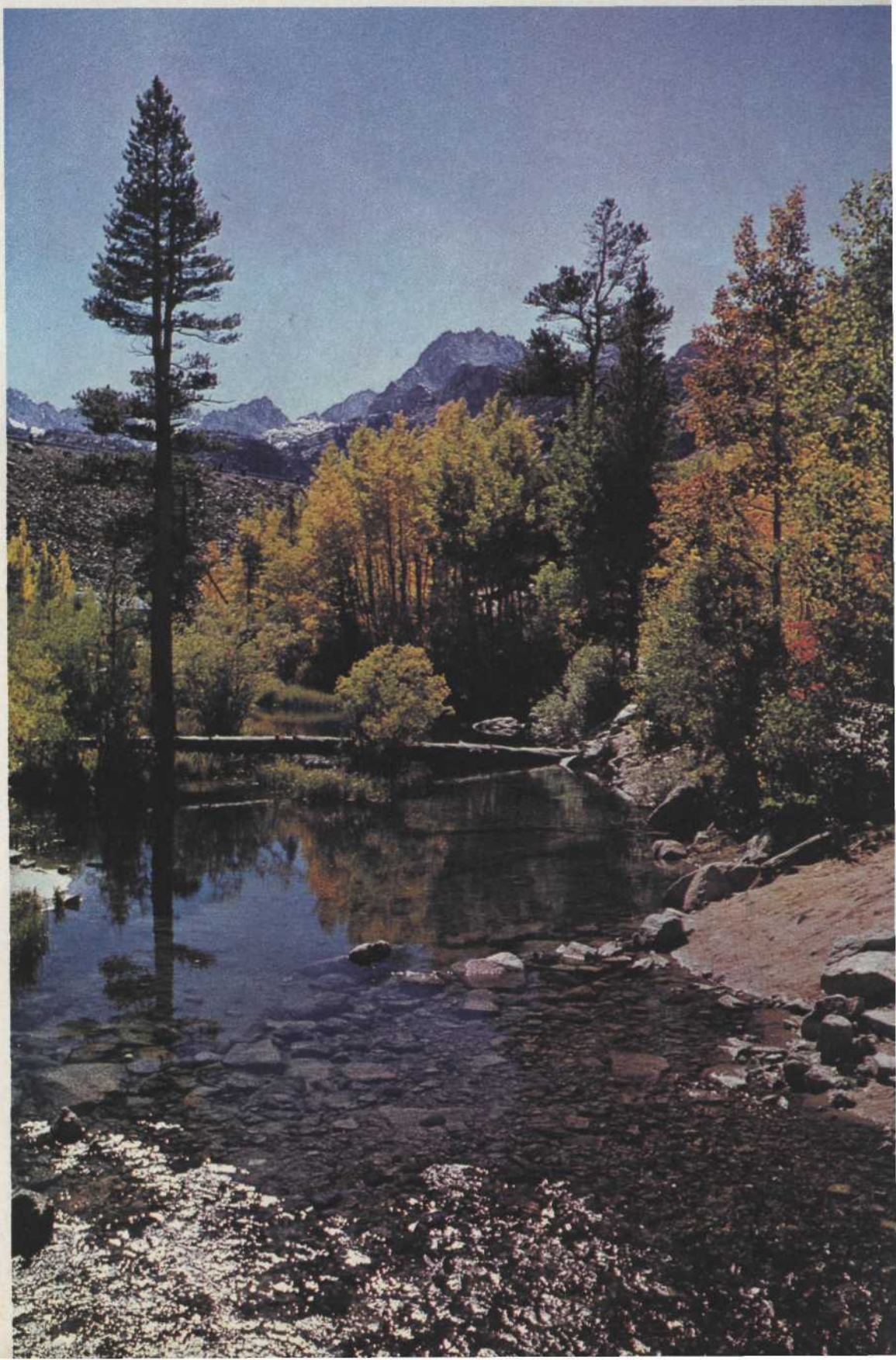
A golden aspen grove in the Buttermilk Country, Inyo National Forest.

by VALERIE JORALEMON

LEAVES DANCE in the sun, pale yellow, gold and amber with touches of ruby, the dark green of pines and the deep blue sky contrasting sharply with the brilliant foliage. This is not fall in New England, but autumn in Inyo and Mono counties on the eastern slopes of the California High Sierra where the air smells of dry leaves, wood smoke and squaw tea. To most people it is more or less unknown.

Years ago, when a major highway from Mojave to Bridgeport was still a dream of the Inyo

ifornia Gold



Touches of red can be seen among the golden aspen as State Route 168 crosses sparkling Bishop Creek in the Sierra.

Good Road Club, it was called El Camino Sierra, a charming name that was promptly lost to the present Highway 395. When the pave road was completed in 1931, nearly a thousand carloads of revelers gathered at Redrock Canyon to celebrate the event.

Today, this road leads to some of the finest fall colors anywhere and is easily accessible from all parts of California as well as other states.

The heart of this country is the 90-mile stretch that hugs the Sierra from Bishop at the southern

end to Bridgeport at the north. Along this road many small canyons and winding side roads filled with golden stands of quaking aspens invite exploration.

French trappers of the early west had a legend that the Cross was made of aspen wood, and the trees have trembled ever since. Science, with its lack of regard for legend, attributes the motion to a long, slightly flattened stem.

Like a reversible coat this trip can be started north, south or in the middle. It can take a week or a weekend in a car, camper or four-wheel-drive.

Samuel Bishop brought his wife to Owens Valley in 1861 with the intention of settling, but trouble between the Paiutes and the cattlemen sent him packing for Kern County after one brief season, leaving only his name to the creek where the young town would be.

Bishop is small, the quiet streets lined with bright trees. In the center of town at the corner of Main and Line Streets the gold can be seen spilling from the canyons at the foot of the Sierra. This is the take-off spot for several side trips into the Inyo National Forest that can be done in one day or two.

Follow Line Street west out of town toward the mountains. This is known as the Sabrina Road or State Route 168. The road starts to climb steeply above the valley, and even when Bishop is warm it turns much cooler at the higher elevations.

Going up the mountain is a series of experiences. Nine miles up a dirt road branches to the right and crosses a cattle guard. There is a green street sign but that is the only indication it is Buttermilk Road. Plan that for a full day and take a picnic lunch if you want to do much exploring.

Several miles farther near the 8000-foot mark the road to South Lake turns off to the left. A high country road, it follows the south fork of Bishop Creek for eight miles through thick aspen, the mountains at almost eye level. A quarter mile walk from the parking area brings you to the shore of the deep blue lake.

A mile above the South Lake turn a mountain lake sparkles through the trees. This is the Bishop Creek Hydroelectric Plant, a rather ordinary name for such a perfect spot. A short road leads to the lakefront and nearby campgrounds, all a mass of flaming color.

Aspendell is a small resort of shimmering yellows. Above this a short steep road to the right climbs like a mountain goat along the north fork of the creek to North Lake.

Lake Sabrina, the middle fork, is at the end of the paved road about 20 miles from Bishop. It is wide and blue, rimmed with peaks of gold.

The Buttermilk Country northwest of Bishop has some of the best of all the fall foliage. Supposedly the name came about because of a dairy located there in the 1870s. It is said that the teamsters from a saw mill on nearby Birch Creek would stop in for a drink of the stuff, however, it is difficult to imagine such men drinking anything so tame. It has also been said that the long bumpy ride would turn anything to buttermilk.

The road is dirt and a little like a washboard in some places, but a passenger car can make it at least the few miles in to the lower Buttermilk Meadows and possibly farther, depending on the daring of the driver. A four-wheel-drive or a stout truck is a must for going all the way to the top of the Upper Buttermilk.

Here the smell is woodsy and wild rose hips abound. Aspen form an arch over the road and it dips to cross a creek filled with leaves like shiny gold coins, then climbs sharply to emerge at the top of the world.

Highway 395 winds lazily through Round Valley and ten miles north of Bishop is the turn to Pine Creek, famous as the home of the Union Carbide Mine. Follow the canyon and six miles up on the right is a small pipe from which pours the sweetest fresh water. Take a jug, if you have one, and fill it. The paved road continues to the bridge and pack station below the mill.

Instead of the new freeway take the old Sherwin Grade which curves north at the bottom of Pine Creek. There is another access at Lower Rock Creek Road. Sherwin Grade was a terror for wagons in the early days and was one of the first road improvement projects along this route. The older two-lane road entwines itself with Rock Creek all the way to Sherwin Summit where it rejoins 395.

Hilton and McGee Creeks are close together opposite Crowley Lake, named for Father J. J. Crowley, the "Desert Padre." These two canyons, which at other times of the year hid their entrances behind uninviting brush, have some of the best aspen coloring and are clearly visible from the highway.

The road up Hilton Creek goes barely a half mile, however, the neighboring McGee Creek has a road that winds several times that far, ending a mile above the pack station. Near the end look for the copper birch, an uncommon variety named for the color of its bark.

Convict Lake received its name in the best traditions of the Old West. On a September morning in 1871, a fierce battle took place on Monte Diablo Creek between six escaped prisoners from Carson City and a posse headed by Robert Morrison. Morrison was killed, and Mt. Morrison is named in his honor. As a result the area became known by the name it bears to this day. There is a resort on the lake two miles west of 395.

Every skier knows Mammoth Mountain. The village of Old Mammoth is charming and very colorful in October. To the west the delicate peaks of the Minarets and the trail to Devil's Postpile are reached by State Route 203.

June Lake Loop is an especially fine place to see the fall colors. State Route 158 branches west off 395 and climbs Oh! Ridge, so named because people invariably make this exclamation when

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North of State Route 168 near Lake Sabrina, California.

the rise is topped and June Lake comes into view.

On the right Reversed Creek wends its peculiar way, flowing towards the mountains and its namesake, Reversed Peak. The road winds through the resort town of June Lake and past Gull, Silver and Grant Lakes to rejoin 395 just south of Lee Vining.

Le Roy Vining was a miner and in 1853 his search for gold (the other kind) brought him to a sweet open meadow which was later called Lee Vining Canyon, now the gateway to Yosemite. Just six miles up Tioga Pass is Aspen Grove Campground.

One of the outstanding places to discover autumn is Lundy Canyon in the Toiyable National Forest seven miles north of Lee Vining. The colors pile one on top of another all the way to the tops of the mountains where waterfalls cascade between burnt orange. To the east the blue of Mono Lake reflects the snowy peaks.

About four miles up the road Lundy Lake comes into view, and above the opposite shore on the steep sides of the mountain is where the May Lundy Mine perched during the camp's heyday in the 1880s. At the head of the lake is a rustic resort, and at this point the roads become rutted dirt. Beyond this are many fine campsites.

Near Conway Summit, named for an early ranching family, a parking area overlooks Mono Lake and much of the country mentioned here. Once at the summit acres of aspen cover the broad meadow and climb the long sloping sides of the peak.

Here a paved road wends its way seven miles to the Virginia Lakes basin. Eleven lakes are strung out within an hour's hike, but simply driving to the end of the road is well worth while.

Green Lakes is the next side trip and the dirt road is a good one.

In the early days, when the white settlers were just beginning to hear of the beautiful virgin country east of the Sierra, Bridgeport was called Big Meadow. Its present name came about when shops were first built across a footbridge over the east Walker River in 1863. Today it is a quaint little town surrounded by high mountains and flanked by Bridgeport Lake.

Just out of town a zig-zag road leads to several guest ranches and the Twin Lakes resort area, a canyon of remarkable beauty. Beyond the lake the crags take the form of a face looking up at the sky.

At the foot of the towering ridge near the upper end of the lake is a lovely spot known as Mono Village, at one time the site of an early homesteader's cabin. Now it is a popular resort.

The time for catching fall colors at their peak varies with the weather conditions each year. Generally mid-October is about right, though it can be slightly earlier or later. The beauty lasts for about two weeks so there is plenty of time to enjoy it.

The Bishop of Commerce and Visitors Center, located in the City Park on North Main Street, will provide information and brochures on the area and advise of the best time for fall colors.

Bishop has over two dozen motels, several campgrounds and trailer parks and a wide variety of restaurants.

Both Bishop and Mammoth are served by Sierra Pacific Airlines. Rental cars are available from Eastern Sierrra Motors in Bishop.

It really doesn't matter where you decide to start. The Buttermilk, McGee, Lundy—everyone has their favorites. If you find yourself in one spot and don't want to leave, stay and explore it. This is one time when perfection is where you find it, and that is likely to be wherever you go. □



Left: The Saline Valley Tramway high above the Owens Valley. Opposite: The old railway turntable at Laws, California.

"LAND OF LITTLE RAIN" NOW RECREATION EMPIRE

OWENS VALLEY'S ROMANTIC PAST LINKED WITH PRESENT THROUGH MANY REMNANTS

by BILL JENNINGS

MARY AUSTIN named it "The Land of Little Rain." Her poetic description applies to a huge region east of the Sierra Nevada—including Owens Valley, the Mono Basin, the desert ranges and Death Valley.

From the new Interagency Visitor Center just south of Lone Pine at the junction of U.S. Highway 395 and State Route 136, the northwestern entryway to Death Valley, the visitor gets a look at the area's tumultuous past, when mines, ranch empires and even steamboats flourished, combined with a glimpse of the romantic present. Relics of the past offer insight into the old days and pro-

vide some of the varied recreational activities that make up most of the economic life of this arid region today.

The Visitor Center is described elsewhere in this Death Valley edition of *Desert Magazine*. It is only one of many windows and doorways that offer fresh views of the historic region. Others have written about the long mining history and will again in this and future issues of this magazine. Perhaps, however, a look at the transportation systems that linked Death Valley with Owens Valley and both with civilization is in order.

Railroads, tramways, steamers on Owens Lake, two record-setting electrical transmission lines and a unique monorail 50 years ahead of its time were among the innovations that developed here to move the mineral wealth to market, powered and moved the the mines themselves.

This is desert country, where the Mojave and the Great Basin meet. The great Basin is the largest North American arid province, covering only a corner of California in Inyo and Mono counties, but most of Nevada, Utah and major segments of Idaho, Oregon, Washington and western slopes of Colorado and Wyoming.

The network of mostly narrow-guage railroads, spectacular tramways and powerlines that helped develop this region nearly a century ago has survived in some cases to the present. Where it has disappeared the fragile spiderweb has provided the nucleus of several outstanding museum displays.

Two pioneering powerlines remain. One, dating to 1905, started on Bishop Creek to cross the White Mountains to Tonopah and Goldfield, the first long-distance high-voltage line in the nation. It made possible the spectacular silver and gold strikes of western Nevada and provided the knowledge that has resulted in the commonplace tower lines of today, particularly the first of these, the 238-mile Bishop to San Bernardino span. Both are still in service, operated today by Southern California Edison.

The Bishop Creek-Tonopah line threaded Fish Slough and then the more poetically named Silver Canyon to the crest of the White Mountains. This route today offers some of the best four-wheel-drive motoring in California, a rather difficult shortcut to reach the ancient bristlecone pines of the Whites.



The same pioneering power company, which later became Southern Sierras and California Electric before merging with Edison, established one of the most spectacular tramways in the west, the cable line from Rush Creek power station, near June Lake, to Agnew and Gem lakes. The combined lift is more than 1,800 feet over a 6,400-foot run.

Better known is the Cerro Gordo aerial tram at the southeast end of Owens Valley, connecting the still active town of Keeler with the historic mining district five and one-half miles up in the Inyo range.

The Cerro Gordo tram was erected too late (in 1915) to help the heyday of the mining districts, one of the best silver producers in the history of California, but it survived to haul limestone out of one of the most famous lodes, the Union, and was not dismantled until 1960. Tower, some cable spans and buckets still remain in view along the spectacular road that connects Keeler and Cerro Gordo.

Even longer and more spidery was the thirteen and one-half mile Salt Works tram that operated from 1911 to about 1916 to haul the product of the Saline Valley salt works to the railhead at Tramway station, four miles northwest of Keeler. It was a failure, in part, due to the excessive weight of the water-sodden salt that overloaded the cableway on the long ascent of Daisy Canyon and resulted in runaways on the Owens Lake end of the run.

Remnants of this tram were still visible on the Saline Valley side up until a few years ago.

Few railroads penetrated this arid corner of California. Most famous of these was the 300-mile Carson & Colorado, which ran from 1880 to 1960, although abbreviated to only 70 miles, between Laws, near Bishop, and Keeler from World War II.

The C&C is well memorialized at both the Laws Railroad Museum and the Eastern California Museum in Independence, the Inyo County seat. Three of the little steam engines that powered the ore trains and tourist specials in later years are still on display, at Laws, Independence and in Carson City, Nevada.

Built by the promoters of the famous Virginia & Truckee, the C&C came under control of the Southern Pacific in 1900, giving rise to hopes it would be standard-gauged and eventually form part of a new regional mainline from Ogden, Utah, to Los Angeles. Collapse of the mining boom killed that dream even before World War II.

A connecting standard gauge branch remains. Known as the Jawbone from the famous canyon near Little Lake, this SP spur connects Mojave with Lone Pine, It was built in 1910 to serve the Los Angeles Aqueduct and still operates three times a week to haul talc and other minerals to the Los Angeles basin.

Even more obscure than the C&C was the narrow guage Bodie & Benton Railway which operated from 1881 through 1917, 27 miles between Bodie and the now abandoned logging center of Mono

Mills, near the south shore of Mono Lake. It never reached Benton, where it could almost touch the C&C.

The old Bodie station is one of the landmarks of that historic mining center, now a state park. Nothing else of the old line, built to haul lumber for the mines and charcoal for the smelters, remains today, other than occasional scars left by the abandoned track.

The C&C's route over Montgomery Pass is partially used today by U.S. Highway 6, on the route between Tonopah and Bishop. The former Keeler station still exists, next door to the transplanted depot from Owenyo, former junction with the Jawbone.

One more rail line still runs in the Death Valley region, although the purist does not consider it a part of the Owens Valley-Death Valley mining legend. This is the 30-mile-long Trona Railway, built in 1913 to haul the chemical wealth of Searles Lake to a connection with the Jawbone branch at Searles Junction.

Not exactly a conventional railroad but a transportation line just the same was the Epsom Salts Monorail, which connected with the Trona Railway and shipped carloads of the household necessity irregularly during the mid-1920s.



The monorail consisted of 28 miles of A-frame timber bents connected together with side boards, topped by a steel running rail. It ran across Searles Lake to the east, through Layton Canyon and Wingate Pass to the epsomite surface deposit in the Owlshead Mountains. The ore was scrapped with hand shovels and raked into gunny sacks or metal bins which were slung on the side of the monorail cars or locomotive—a converted Fordson tractor.

The tractor had a flatbed attachment and also towed cars. Steep grades restricted tonnage and a larger locomotive was tried semi-successfully. Although service between the mine and a Long Beach area processing plant stopped in about 1926 the old A-frame roadbed was in place until World War II, providing well-seasoned firewood and tunnel timbers for miners and occasional campers. The area is now within the Naval Weapons Center boundary and access is restricted.

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The tailing dumps and structures at Cerro Gordo, high above Owens Lake. Photo by Lambert Florin.

One Owens Valley railroad chartered in 1909 was never built, but captured the imagination of the predominantly rural population. Grandly titled the Owens Valley Electric Railway it was planned to connect Bishop with the Carson and Colorado at Laws station four miles to the the northeast. A 12-mile extension was planned northwest to Round Valley to tap a new farming area envisioned by the promoters as part of the stock selling program. A 16-mile line south to Big Pine was proposed as the start of the interurban network connecting all the Owens Valley towns. Power would come from the new Bishop Creek plants built to serve the Tonopah and Goldfield mines in Nevada.

Emergence of the Los Angeles Aqueduct and resulting loss of irrigation water to the metropolis killed the plan but several miles of grading in the vicinity of the Owens River east of Bishop was still visible until recent years.

Much of this obscure but fascinating transportation history is mirrored in exhibits at the Interagency Visitor Center, the Laws Railroad Museum, Death Valley National Monument's interpretative center at Furnace Creek and the new Eastern California Museum at Independence.

Appropriately the county seat museum at Independence is near Mary Austin's old home. She lived there in the 1890s and early 1900s when she wrote "The Land of Little Rain," which was published originally in 1903. A new edition has been released by the University of New Mexico Press and should cultivate a new crop of Austin admirers—who in turn will become desert lovers as well.

She expressed the hold the desert gets, very well indeed:

"For all the toll the desert takes of a man it gives compensations, deep breaths, deep sleep, and the communion of the stars."

From "The Land of Little Rain," by Mary Austin. □



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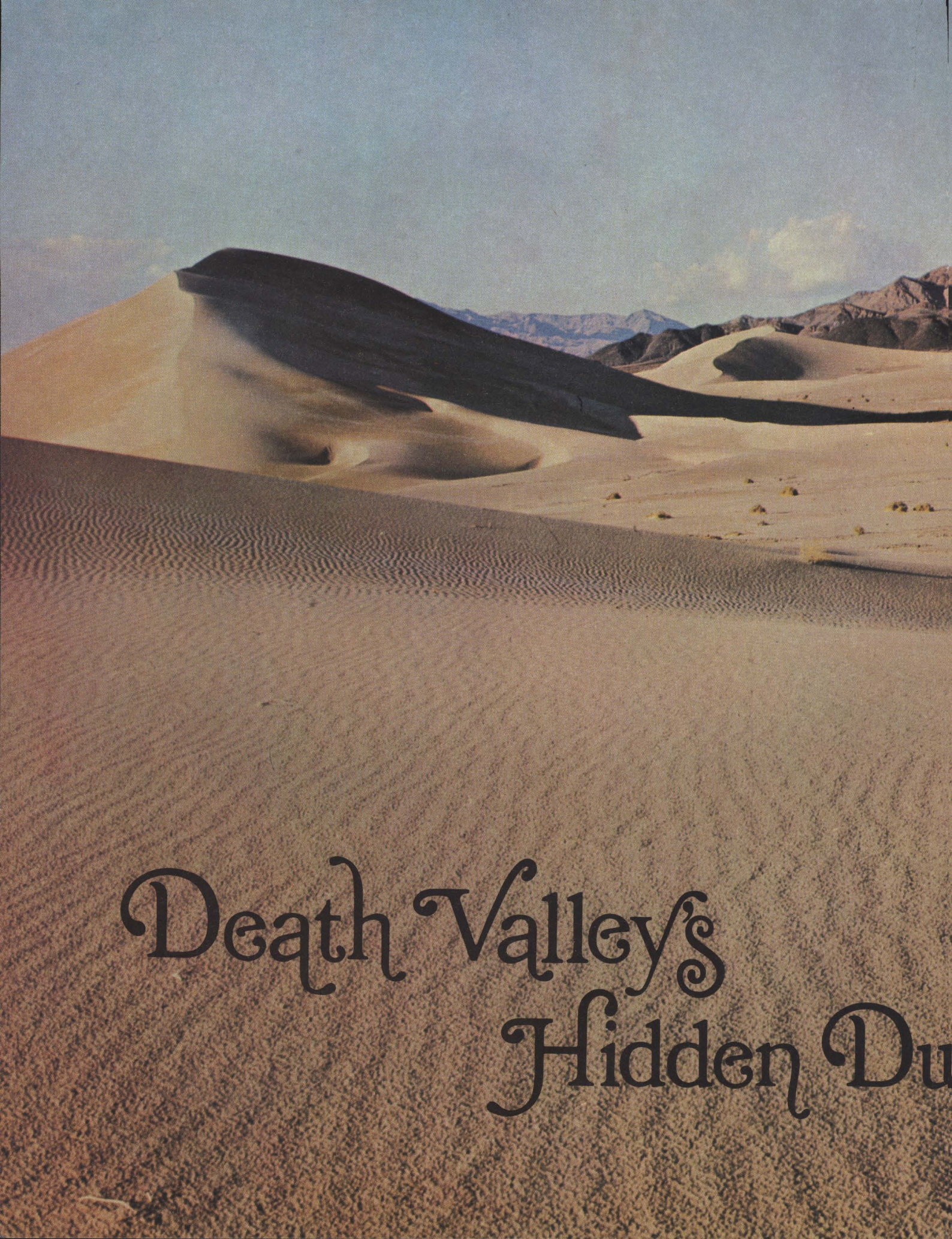
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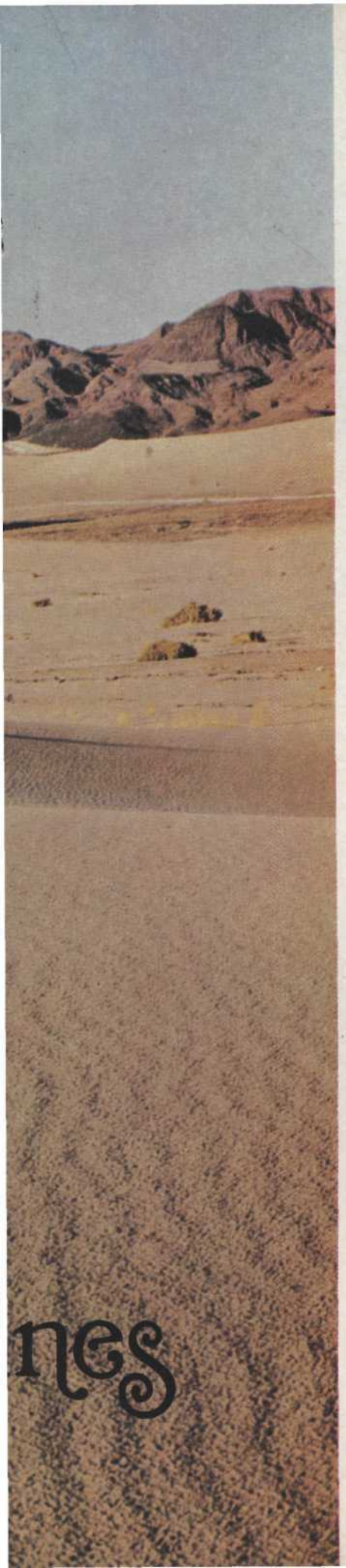
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Death Valley's Hidden Du



nes

THE MONTH of November and Death Valley have become synonymous for desert enthusiasts. While this is due in part to the Annual Death Valley Encampment (1977 is the 28th year), it is also because of the generally pleasant weather—the Thanksgiving holiday and the magical spell Death Valley casts over so many of her visitors. November is a time when a sizable number of people make their annual pilgrimage to this shrine of desert beauty. Many have been doing so for 30 or more years.

Jerry and I are among Death Valley's devoted admirers; and, through the years, our visits have developed into a sort of a game—the object being to locate an interesting area that is new to us. Actually, it is an easy game for those of us who follow the back trails and find contentment in the lonely, unspoiled regions of this magnificent valley. Last year, our trip had two rewards. While exploring the Ibex Mountains, outside the National Monument, we collected unique "picture rock" and encountered the very photogenic "Hidden Dunes of Death Valley."

The Ibex Range occupies the southern tip of Death Valley—west of Highway 127, 30 miles north of Baker, California. They are an unusually colorful group of mountains composed of barren green, red, brown and black peaks. Saratoga Springs occupies an embayment at the southwestern tip of the range. It is one of the desert's largest springs and Indian petroglyphs indicate its use in prehistoric time. Early explorers and emigrants who traveled the Spanish Trail found the springs a welcome resting place.

In this century, Saratoga Springs has served prospectors, miners, travelers and, more recently, desert enthusiasts. For many, the springs were a lovely overnight camping area. Huge, very old, salt cedars provided comforting shelter and shade. The brilliant colors of the hills reflected in the pools and often made those of us without talent wish we could paint the scene. In the name of ecology, the trees were destroyed and the locale closed to camping. It is my personal opinion that a beautiful, historical site has been raped and desecrated. I will never return.

by MARY FRANCES STRONG
photos by Jerry Strong

This trip we traveled north from Saratoga Springs Road for 5.6 miles, then turned left (west) onto an old, graded mining road. Another three miles of travel brought us to the "picture rock" locale in the Ibex Mountains.

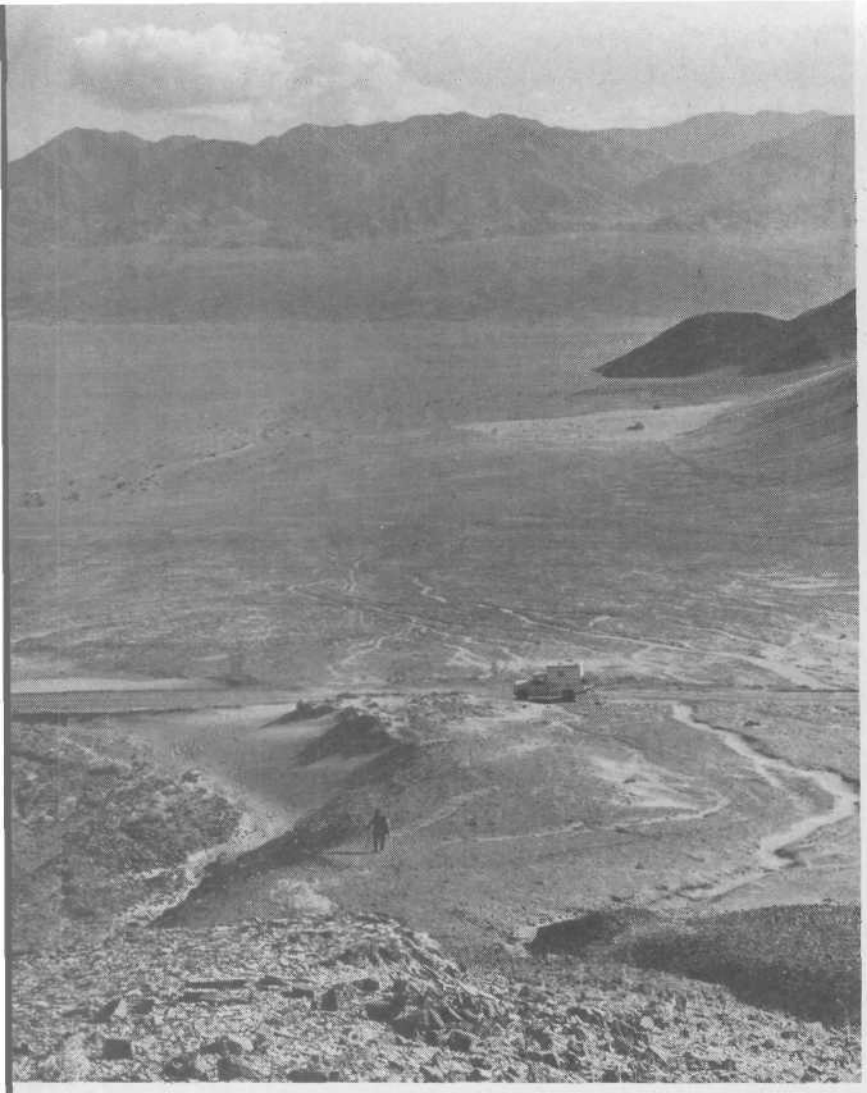
We had been told about the picture rocks many years ago. However, we were always chasing petrified wood, agate, opal or amethyst when in the area, and didn't take time to check out the deposit. Until Bob and Edna Tenney of Santa Barbara stopped by to show us the attractive specimens they had recently collected, we hadn't realized the potential for rockhounds.

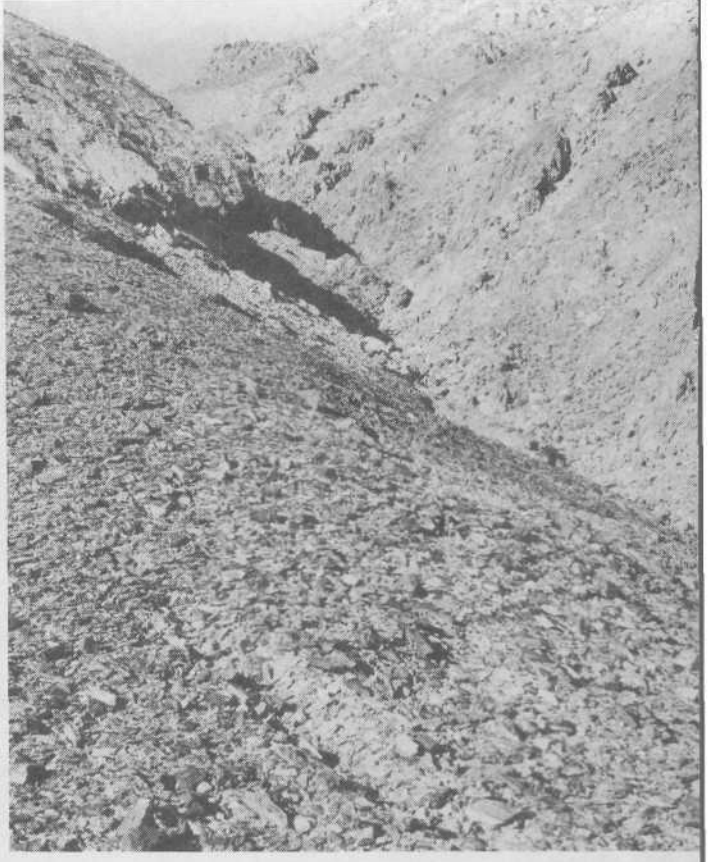
"Picture Rock" is not cutting material nor a showy mineral specimen. Instead, it is an Algonkian, metamorphosed, sedimentary rock containing manganese inclusions—the latter having arranged themselves in a manner after pictures. Perhaps the best description would be to say, "They resemble the bold brush strokes of oriental paintings." The basic rock is predominately deep rose, tan or light grey. The "brush strokes" are black, red, warm brown and tan. My favorite specimen depicts a storm crossing the desert—black cumulous clouds racing across a deep rose and tan sky.

Tons of "picture slabs" are eroding from the hills and have formed sizable talus slopes. The largest slabs will be found on the west side of the ravine near the top of the hill. Collecting was really fun as we tried to "see" the pictures and decide which specimens to keep. If you would enjoy a beautiful painting by Old Mother Nature, try framing one of the specimens. The rock can be left natural or sprayed with several coats of varnish, shellac or lacquer to bring out the color. We used spray lacquer and the results were great.

After filling our rock sacks, Jerry suggested we follow the road west. Any road "leading on" is a temptation we seldom ignore. We wandered over a small pass and there, below, lay the Hidden Dunes.

The pristine beauty of the Hidden Dunes is a joy to behold. Protected from any vehicular use, they attract photographers, as well as those who love the desert's varied forms.





Above: This talus slope indicates the tremendous quantity of "picture rock" eroding from the hills. Colorfully patterned specimens can be collected over a wide area. Left: Visitors to the southern end of the Ibex Range will be treated to panoramic views, rock collecting and fascinating sand dunes. Looking south from the picture rock locale, the Avawatz Mountains form a backdrop.

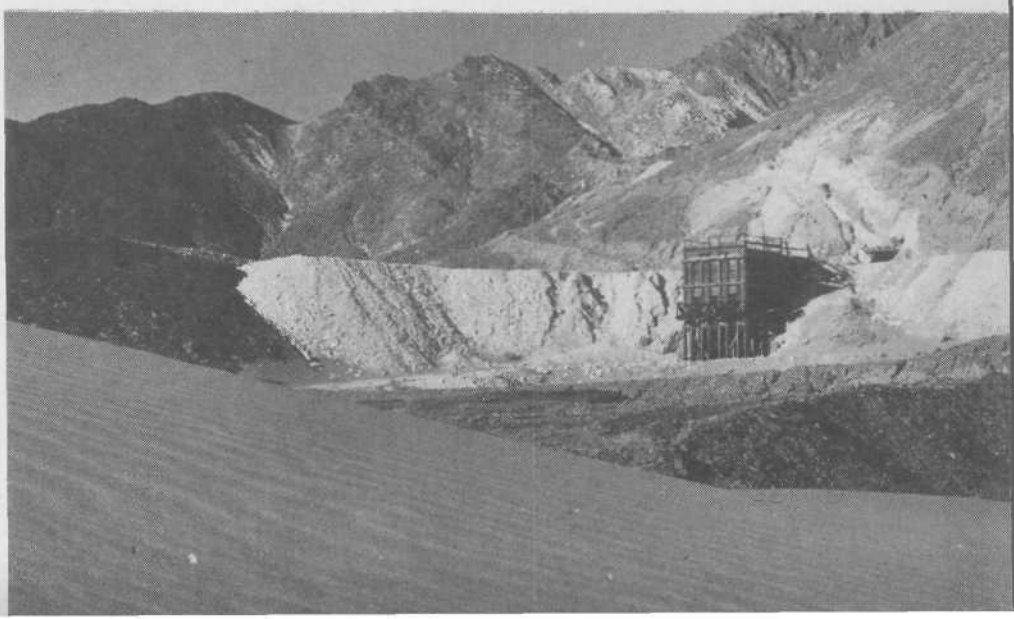
If you look closely, you can see the dunes from Saratoga Springs Road but they appear small and not picturesque. It is along their eastern face that the curves and form are accentuated.

The Amargosa River is only a wide ribbon of sand along most of its course and it is probably the main source of material from which the winds have built the dunes. After the river begins to curve around the southern end of the Ibex Mountains, it fans out into a half-dozen channels. This is flash flood country and any heavy runoff from thundershowers races down the barren slopes and spreads into a shallow sheet of water across the valley. It fills the playa then follows the river's channels into Death Valley. After the storm, the earth dries—the heavy winds come and the particles of sand flow and ebb at its mercy.

The Hidden Dunes are within Death Valley National Monument and protected from any use by off road vehicles. Their pristine beauty is a joy to behold. Known mainly to camera buffs, the dunes can be explored on foot and some fine photographs taken. The early-morning and late-afternoon hours produce the most spectacular results.

We followed the dunes north for nearly a mile. At this point, a large dune had drifted over the base of the hills and blow sand covered the road. At the apex of the half-circle around it, was the B.B.J. Talc Mine. Another half-mile of travel brought us to the headframe of a second talc mine. Our road, which had deteriorated into a blow-sand trail, curved northwest.

"We had better turn around," Jerry



At the B.F.J. Talc Mine, the dunes are encroaching upon the loading ramp and dump. From this point, travel north is advisable only for four-wheel-drive.

advised. "I want to take some pictures of the dunes and saw a good place between the two mines." Soon, we were trampling among the sandy hummocks and marveling at Nature's sculpture.

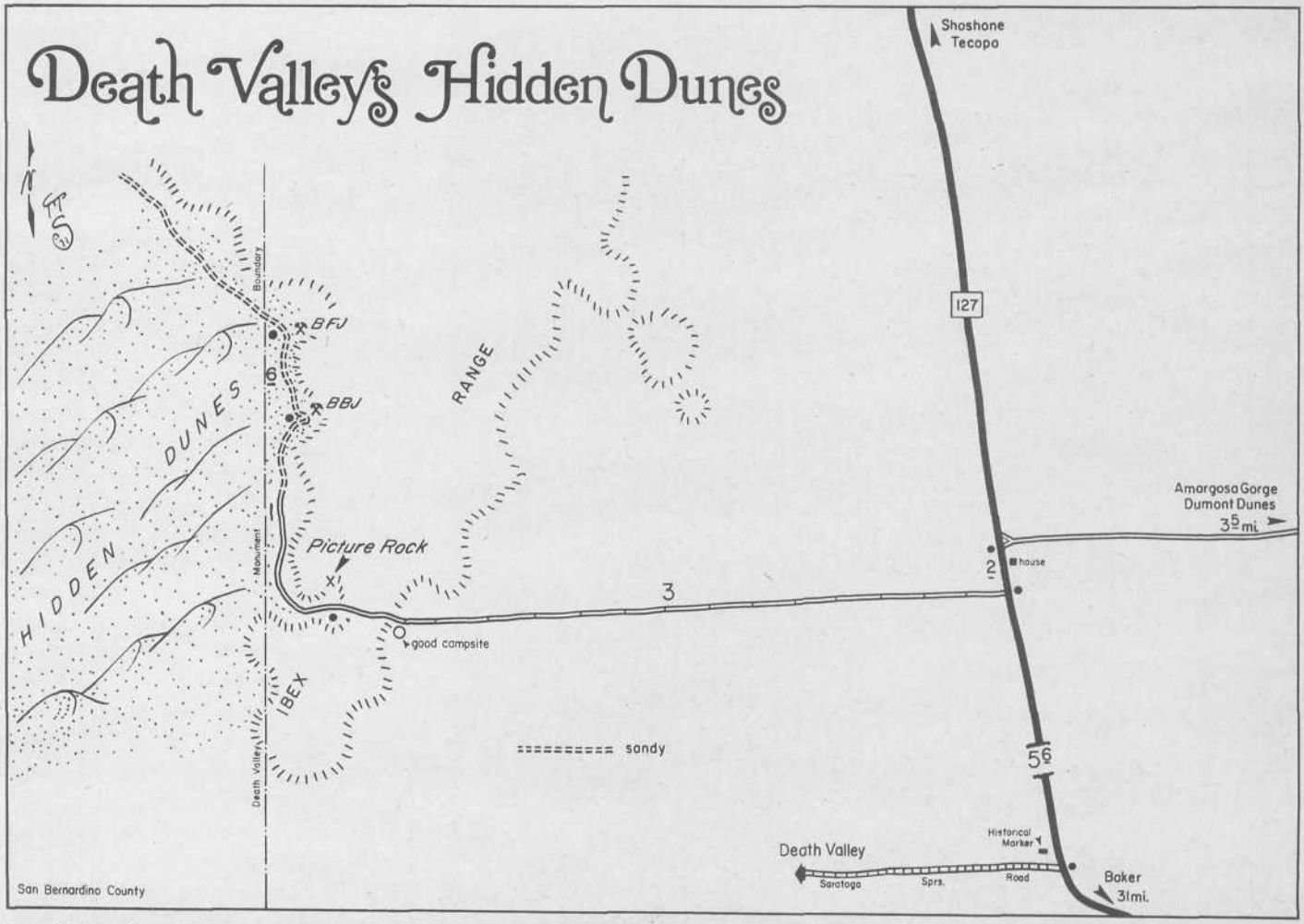
On the way back to camp, we stopped and looked over the B.B.J. Mine. There has been considerable exploration including a tunnel and numerous cuts in the hills. A sizable dump and loading ramp indicate production. Talc mining in the Ibex Mountains is relatively recent (1940s-1950s) and both mines we visited were idle.

The talc deposits are confined to the Crystal Springs Formation—the lowest member of the three formations comprising the Pahrump Series of later pre-Cambrian age. A carbonate member, mainly dolomite, occupies several hundred feet in the center of the formation and is overlain by a large strata of both carbonate and non-carbonate deposits. Diabase sills have intruded above and below the carbonate members and the resultant alterations have produced the talc bodies. While a great deal of altera-

Continued on Page 46

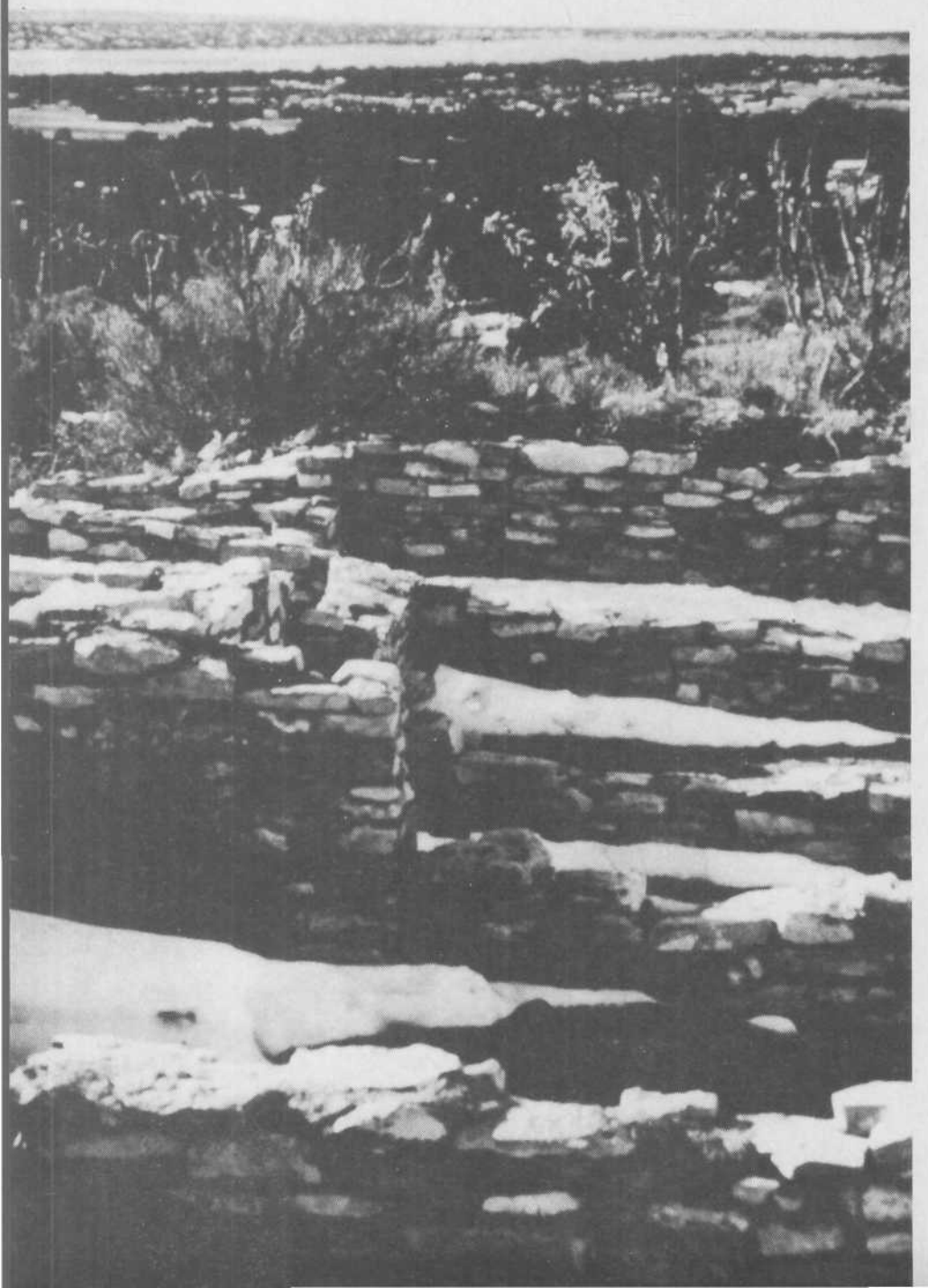


During the 1940s and 50s, two talc mines on the southeastern end of the Ibex Range produced material suitable for use in the wall tile industry. The headframe and loading ramp of the B.B.J. Mine now stand as silent reminders of the activity.



JORNADA DEL MUERTO

by JAMES S. LEONARD



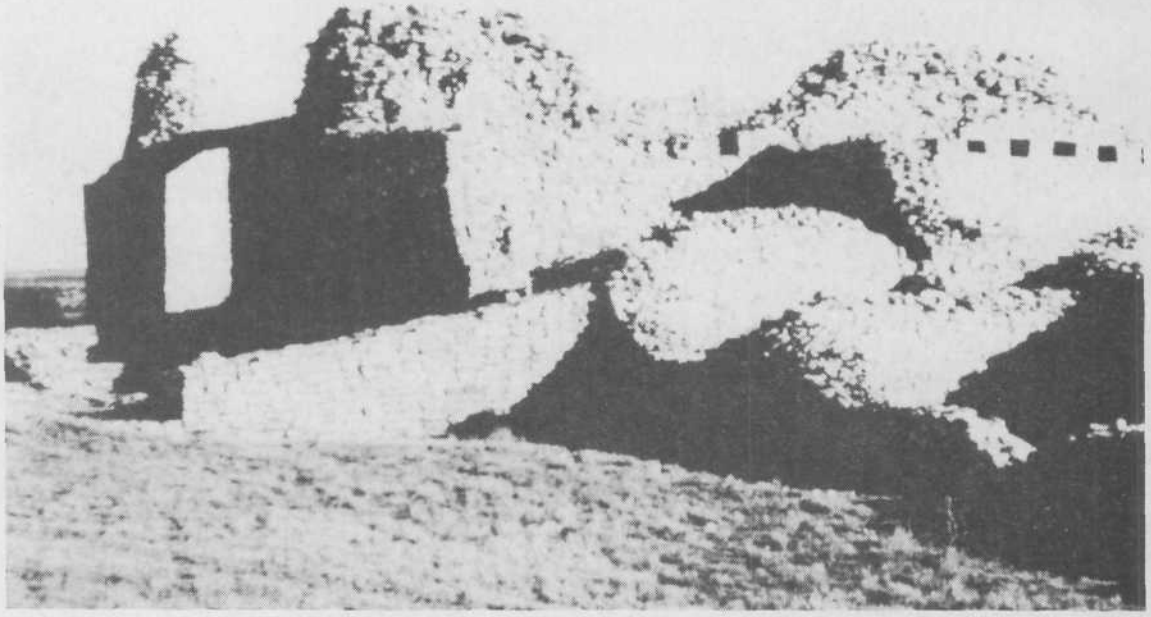
THE FOOT-SORE travelers stood on the muddy banks of the Rio Grande, trying not to look into the glaring distance ahead. Some busied themselves loading barrels of water on their ox-drawn wagons. Others rounded up the thousands of head of livestock and drove them to the river for one last drink. Men check their guns, women pulled their children close. They all gathered for a final prayer. Then the word was passed and the band set out along the most dreaded section of the road: the Jornada del Muerto — the Dead Man's Trail.

Three hundred and some years later, my wife and I set out to cross the Spaniards' path. Now there are a few roads, and even highways on the Jornada, which helps a lot if you happen to be fresh out of mules and wooden-wheeled wagons. But otherwise, it is just as bleak, just as dangerous as it was to those early travelers who ventured across it. It is also vastly beautiful.

The Jornada lies in central New Mexico, beginning about 40 miles south of Albuquerque. From there, it carves a flat, dry crescent 90 miles south to Las Cruces. On the east, the San Andres Mountains separate it from the well-watered Tularosa Valley. On the west, the Caballo and Fray (or Fra) Cristobal Mountains bar the way to the waters of the Rio Grande. Occasional storms of frightening intensity sweep through it, threatening the life of anything caught out unprotected. The storms pass on, and the water or snow drains quickly away, leaving the land as parched as before.

The history of the Jornada really begins with the Spanish colonists of the 16th century. Until then, the Pueblo and Plains Indians avoided the area like the plague, sticking to the Rio Grande Valley, or going east of the San Andres. But in 1596 the Spanish, fearful of the Indians, and in need of a flat, level plain to accommodate their cumbersome wagons, chose the then-unnamed plain over the precipitous arroyos along the Rio Grande. Don Juan de Onate was the first to cross it. Leading 130 families, 83 wagons, and over 7,000 head of live-

Gran Quivera provided a meeting place for the roving Plains Indians and the Pueblo tribes of the Rio Grande. Now it is as lifeless as the Jornada del Muerto which lies at its back door.



The Jornada points north toward the ancient Indian city of Gran Quivera. Dominating the ruins is this massive church built by the natives for the Spanish missionaries.

stock, his aim was to set up a village among the Indian pueblos of the Northern Rio Grande. Fifty years earlier, Coronado had led the first Spanish exploration of the area, coming east from Arizona in search of the elusive Seven Cities of Gold. He reported the pueblo Indian towns along the Rio Grande peaceful, if devoid of fabulous riches. But the dream of gold lived on. Onate hoped to find what Coronado had missed—and to join the ranks of the fabulously wealthy Conquistadores who had explored Central and South America.

But first he must cross the unexplored desert ahead. He set out across the 30-mile-wide, and 90-mile-long valley, hoping it would curve back to the river. In fact it curves away from the Rio Grande. The high mountains cut him off from the river, and his slow-moving train baked in the glaring heat. First the sicker animals began to die. Then the healthier ones. Two slaves strayed off and were found dead. People were becoming too weak to walk, and the oxen were too weak to pull them in the wagons. Partial relief was found when a little dog returned to camp one evening with mud on his feet, and one of the soldiers found the spring nearby. They named it El Perillo—Little Dog Springs—in honor of its discoverer.

Onate led a group of horsemen ahead, and after days of travel, found a way off the Jornada and back to the river. An Indian town there proved friendly, offering food and water to the parched Spaniards. The Spanish named the town Soccoro—Succor—for their kindness. The name has stuck through the centuries.

As bad as they had it, the settlers in that first band still were lucky. As the Spanish set up their colony at Santa Fe and began a fitful trade with the Indians, the Jornada became part of the regular route to their home base in Chihuahua. It was by far the worst part of the whole Chihuahua Trail.

As discontent developed among the Indian tribes, the Jornada became an ideal ambush location. Indian raiders, particularly the Apaches, realized the vulnerability of the Spanish upon the Jornada. Rip open their water bags or drive off their stock, and they would perish without a shot being fired. Hundreds lost their lives along the 90-mile stretch of desert.

Even Onate was not exempt from the tragedy of the trail. Recalled to Chihuahua, the Governor's party was caught in ambush on the Jornada and he saw his only son die.

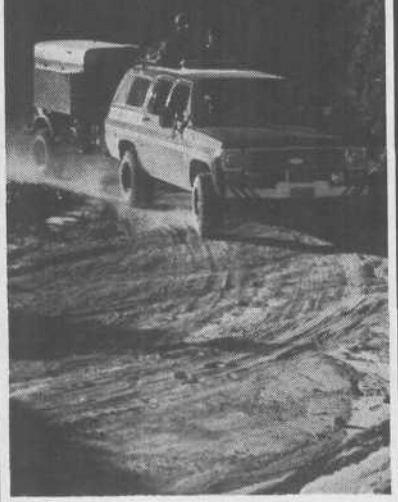
As bad as it was, the Jornada was still considered the best way to go. The sudden arroyos of the Rio Grande took too long, increasing a wagon train's vulnerability. East of the San Andres were the stamping grounds of the Mescalero Apache. That way led to certain death. At least the Jornada was fast. By pushing hard, you could cross it in three forced marches, usually done at night to avoid the blistering heat. Yet the threat of ambush was such a constant menace on the Jornada, a merchant living in Santa Fe wrote as late as 1812 of posting over 100 sentries to guard livestock, wagons and people.

During the 1860s, a strained Union Army, fighting both Indians and Confederates, finally made an all-out attempt to quell the Indian raids. A young Sergeant named Albert J. Fountain led several successful sorties against the Apaches, distinguishing himself for his bravery. Once he held an entire war-party at bay with his Sharps rifle, while severely wounded and trapped under his dead horse.

Thirty years later, Fountain, then prominent in New Mexico politics, disappeared on the trail to Las Cruces, just over the San Andres from the Jornada. His body was never found. One of the legendary figures of the west, Pat Garrett, combed the Jornada, looking for clues to his murder, or for the murderers themselves. The Jornada concealed more than one body, and more than one murderer. If they were going to hide, the vastness of the Jornada was the perfect place. It kept many fugitives free from the law, among them Billy the Kid.

The Jornada also figures in American literature. It was here that the Bar Cross Ranch was established, and here that

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The flat floor of the desert looked easy enough to cross with the cumbersome wagons of the Spanish and American traders.

one of its cowhands, Eugene Manlove Rhodes, cast some of his classic novels. Characters in *Paso Por Aqui*, and other Rhodes stories cross and recross the Jornada.

The naming of the Jornada proved prophetic in a way the Spanish settlers never could have dreamed. On July 16, 1945 the Air Force secretly conducted a test of its latest and most powerful weapon here—the Atomic Bomb.

The Air Force has gradually claimed more and more of the Jornada, using it as a target for testing missiles, until it's hard to get onto the main part of it today. For some months, a group in Albuquerque has been trying, claiming knowledge of a cache of gold hidden up in the hills by a Spanish missionary. The Air Force isn't cooperating.

It used to be possible to drive straight across the middle of the Jornada, from Hot Springs (now named Truth or Consequences) to Tularosa, crossing Rhodes Pass in the San Andres Mountains. Now the Air Force has closed that road, and it's only possible to reach it with the Commanding Officer's permission.

The Jornada is still available though, in two places. You can follow Highway 52 from Truth or Consequences east to Engle, just on the edge of the Jornada, and explore from there, or you can take Highway 380, just south of Socorro, and cross the northern end to Carizozo in the Tularosa Valley. For a little closer taste of the Jornada (only for those with sturdy vehicles), take the dirt road turn-off at the Bingham post office, and head north. The road leads gradually off the plain and up on to the Chupadera Mesa to the east. This gently rolling country offers some spectacular views, many of them west, overlooking the Jornada, and eventually winds up at the "back door" of the Gran Quivera National Monument. A walk through the monument is a fitting climax for a tour of the Jornada. For here lived the Indians who best understood this vast plain, the same Indians who drew the missionaries and traders north in the first place, with stories of cities built of gold. The cities, like the Spanish dreams, turned out to be made of sand.

Oddly enough it was that beautiful, deadly jewel, the Jornada del Muerto that seems to be the embodiment of the Spaniards' dreams. Washed onto the Jornada from the surrounding mountains, the dry streambeds of the Jornada supposedly produce hefty assays of gold. Widely spread, and without available water to wash it out, the gold remains a dream.

But an article in a recent Albuquerque newspaper announced the formation of a small company intending to try for the gold of the Jornada. So the Spanish dream lives again. It is about the only thing still living on the Jornada del Muerto. □

Interagency Visitor Center

by MARY FRANCES STRONG

BEAUTIFUL Owens Valley seems to have been especially created for recreation and it is fast becoming one of California's most popular playgrounds. This great Valley in Inyo County occupies the deep basin separating the mighty Sierra-Nevada Range from the lofty White and Inyo Mountains, which form its eastern border. The Valley and its immediate environs provide the full gamut of outdoor activities the year around.

The mountain and desert scenery is of a grandeur not to be found elsewhere. From the Valley's floor, you can look straight up to Mount Whitney's 14,495-foot crest—the highest point in the contiguous 48 states. Over 90 percent of the land in this region is owned by the Federal Government and the City of Los Angeles. It is managed by three agencies—Bureau of Land Management, Inyo National Forest and Los Angeles Department of Water and Power.

Each, year, hundreds of new visitors are added to the already startling numbers of people who regularly visit the valley. This continuing influx of visitors made it apparent that Owens Valley must be managed in a manner which would allow its recreational use, yet protect its fragile environment. In 1970, the Interagency Committee on Owens Valley Land and Wildlife was organized. It is dedicated to the protection and enhancement of the many resources of Owens Valley.

The membership consists of representatives from 12 different agencies, none of which represents the many recreational groups. I, personally, feel this should be corrected. The views and needs of those of us who love the Valley and use its recreational opportunities regularly, should be considered. We should also be allowed to participate in the recreational planning.

The Interagency Committee's goals and objectives are, indeed, worthy. Its accomplishments are many and include the wildlife viewpoint at the Tule Elk Reserve at Tinemaha Reservoir; construction of ponds to form a series of warm-water fishery and waterfowl habitats; development of a cooperative plan for management of Fish Slough Natural Area and protection of Owens Valley pupfish; an interagency Off Road Vehicle Management Plan; and, its most ambitious project to date—the Interagency Visitor Center.

The Visitor Center is located immediately south of Lone Pine at the junction of Highways 395 and 136. It was dedicated on April 27, 1977 and by mid-August 10,500 people had signed the register. Obviously, there is considerable interest in "what to do and see" in Owens Valley.

At this point, the Center is in the early-development stage of a three-year plan being implemented by Director Frank Mosbacher. The National Aeronautics and Space Administration has designed, constructed and is currently installing solar equipment (photovoltaic converter) to provide the energy for the Center's two water coolers. An interpretive display and brochures will explain the conversion techniques being used.

The Center is now dispensing information, maps and brochures regarding the Owens Valley Region. Director Mosbacher explained, "As the interpretive plan takes shape this fall and winter, the Interagency Committee will attempt to develp an orientation service shaped around the theme of 'understanding through discovery and exploration.' By way of exhibits, displays and personal contacts, the visitor will be invited to join in the excitement of discovery and the challenge of exploration within the diversified area contained within the Center's sphere of influence."

Future plans call for self-service recreation information; self-guided auto and hiking tours plus books on various areas. It is hoped the Center will provide information for the recreational needs of all age groups. Picnicking and camping will not be available at the Center since its objectives are to encourage people to discover new areas away from the facility.

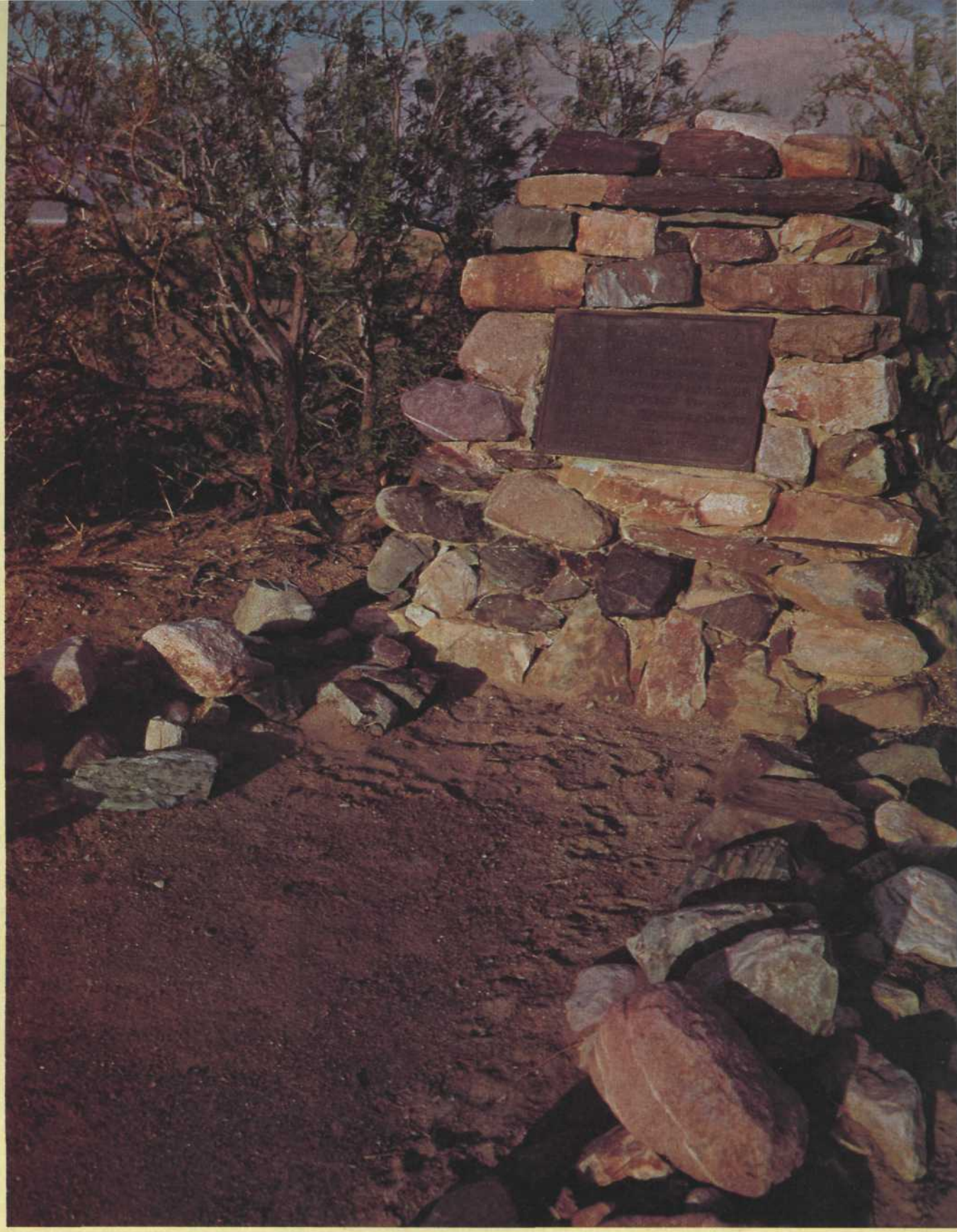
With the Visitor Center's feet now firmly planted in the ground and the "dreams" fast becoming realities, a needed service is established in Owens Valley. We congratulate the Committee on its foresight in protecting the Valley's resources, besides fulfilling the need for recreation. We urge our readers to visit the Center and learn "what is new in Owens Valley." □



The mighty Sierra-Nevada Range forms a majestic background for the newly-opened Visitor Center south of Lone Pine, California.

SHORTY HARRIS AND HIS DOG

by R. M. LOWE



THE FIRST time I ever saw Frank "Shorty" Harris was on a cool day in the fall of 1922, at Shoshone, California. He was perched on a bench on the sunny side of Dad Fairbank's "Mesquite Club." I almost laughed at the sight, but something about the sparrow sized little fellow subdued the impulse. We inventoried one another like two strange dogs. What he thought of my six feet of Texas garb, I knew not what; but his five feet of desert get-up, from his mine-worn Levis to his turned-over hob nail shoes that didn't reach the ground, filled my noggin full of question marks.

I wondered how this little man, with his small hands and feet, fair skin and soft voice, could possible fit an environment as hostile as the desert. My first efforts at probing him backfired into a series of snappy "yeps" and "nopes,"

and left me with a feeling that I was using the wrong pump.

After a reasonable "silence-break," Shorty surveyed me with a cocked eye, and said, "What's your racket, kid?" When I replied that I was agent-telegrapher for the Tonopah & Tidewater Railroad, he perked up and said, "Did you ever hear how a railroad jumped my claim on a name?" Before I could answer, he went on, "That's right, they sure did, and it was the Bullfrog Goldfield Railroad that did it. You see, Bullfrog was the name I gave to a rich discovery claim of mine, near Rhyolite."

Shorty's eyes lit up as he recalled the happy event, and said, "The first quartz I broke from that ledge showed shades of turquoise and jade, and while I was lookin' it over, a dang bullfrog bellowed, and I said to myself, that's it, and named the place "Bullfrog."

After a short search of his mental files, Shorty continued, "You know, that old Bullfrog was the highest grade jewelry rock I ever see'd. Some of the specimens were even used by Tiffany for rings and other gadgets, and some were sold as far away as Paris and London." After that statement, Shorty lapsed into a trip of silence back down memory lane, and I moseyed on back to the railroad depot with a batch of unused questions.

As time went one, I got to know Shorty a little better, and was surprised to learn that behind a mask of ignorance, he concealed a keen intelligence reserved for intimate friends, in moments of repose. However, some of his stories were so fantastic that I thought maybe he was just dreaming out loud. That notion was dispelled, later, when Inyo County treasurer Naylor said, "Shorty Harris has put more towns on the map, and more taxable property on the assessor's books than any other man, regardless of size."

Shorty's "Strike it rich, and spend it now" life was an orbit of "beans and burros" today—"champagne and candlelight" tomorrow, and back to beans again. Slow horses and fast women kept the process in high gear. The colorful antics of this little desert giant spanned a desert and became a legend much richer than any rock he ever found.

Shorty was a perfect prototype of the grizzled prospector. His wrinkled face matched the canyons of the vast and somber lands of solitude through which he trailed his burros. Unending toil and blighted hopes, common to many, were not companions to Shorty. He made it big, spent it all. When asked if he had any regrets, he'd reply, "Not one. The goal is the thing, man, not the gold."

When Father Time whistled the game dead for him, Shorty retired to an old cabin in the shade of the big Panamint Range, at Ballarat, California. The vagaries of old age finally limited Shorty to just squinting at his beloved mountains, and panning their gold through a haze of velvet pipe smoke.

The closing chapter of Shorty's life contained an innovation that taxed his mind and softened his old heart. On a black night, when it seemed that all the winds since the beginning of time had merged to blow his cabin down, Shorty heard a scratching sound on his door and got up to investigate. Before he could close the door again, a wriggling little black rug of a dog squeezed in and wrapped itself around his ankle, and started a sales pitch. Shorty just stood and stared down at the little beggar. He needed the dog like he needed another hole in his head, but didn't have the heart to kick him out. Finally, for something better to do, he comprised, but vowed to himself that he'd chase him out first thing in the morning.

Shorty knew rocks like nobody else, but he didn't know the thousand and one ways a little puppy could ingratiate itself, and bring on a feeling of "I'll do it tomorrow, or maybe the next day."

Shorty's first chore, every morning, was to notify the pup that his rent was up, and time for him to scoot. The pup would pretend that he was deaf, and would go through a routine of new tricks he'd thought up to get Shorty's mind off the subject. It worked, too. Like a little drop of water wearing away a hard rock,the pup got inside Shorty's defenses and won the name of "Sourdough." At last, he was one of the family.

Shorty got to bragging to his old buddies just how smart little Sourdough really was. He'd say, "You wouldn't believe how smart that dog is. In fact, he's got me wondering. Sometimes we'll just set and start at one another, without sayin' a word; and after awhile, I get the creepy feelin' that he knows more about me that I do myself " The man and the dog were to have many good days together; one growing up and the other growing old.

The beginning of the end of Shorty's nine lives came one morning when part of his cabin wall fell and pinned him to the ground. He would have died right there if it hadn't been for Sourdough's barking up a storm to attract help. Neighbors pulled Shorty's broken body out from under the rubble and rushed him to a hospital, in Lone Pine. Shorty died in that place, on November 10, 1934. His mileage read 78 years.

It was reported that just before he died, Shorty said to a friend, "Bury me in Death Valley, along side my old partner, Dayton, and write on my stone, 'Here lies Shorty Harris, a single blanket jackass prospector.' When the friend remarked that the inscription seemed short, Shorty replied, "Well, so am I."

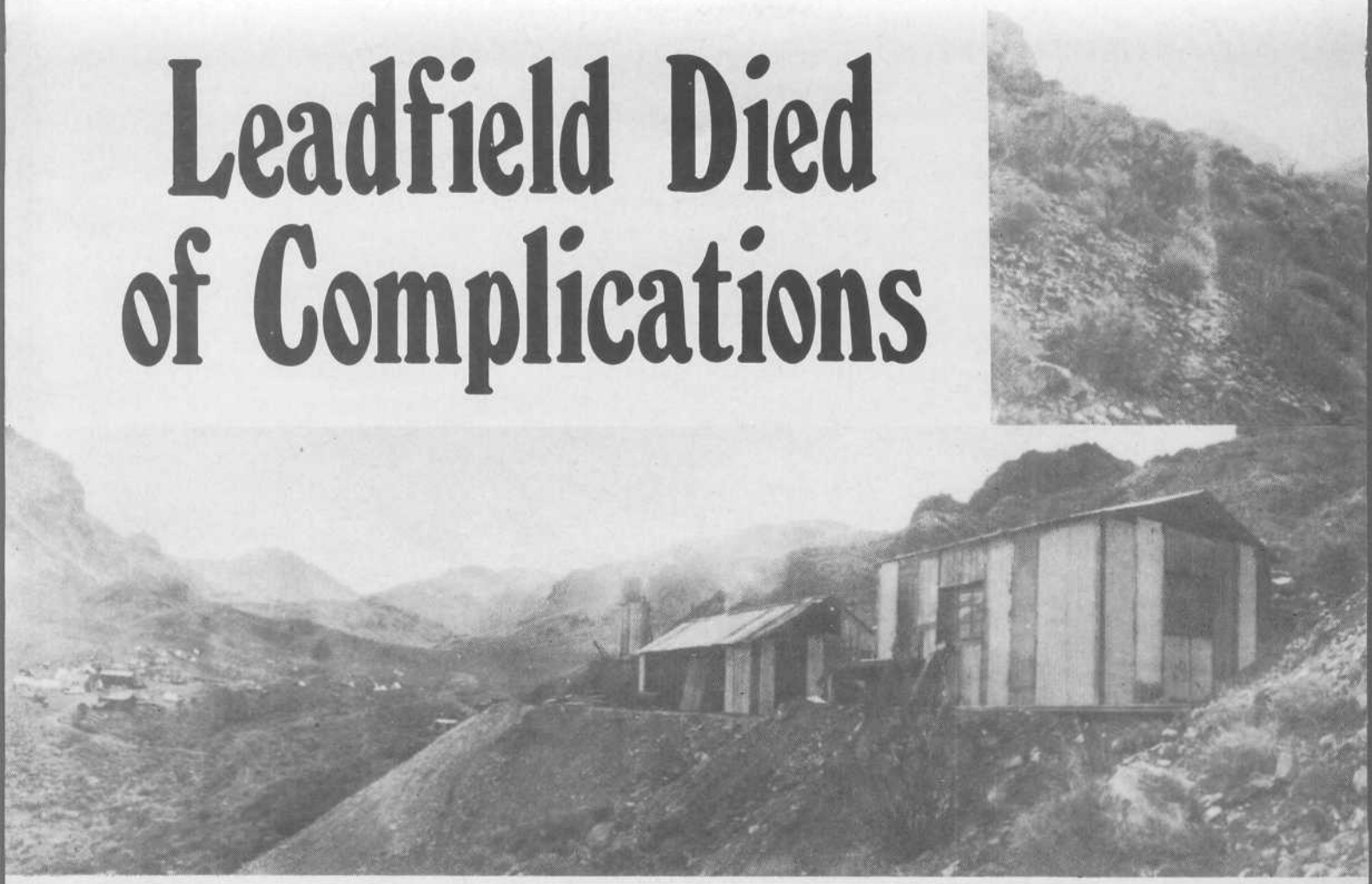
Since time, great monuments have been erected to dead Caesars who left nothing but trails of blood and misery for the common man. The simple little stone, that marks the passage of Shorty, is adequate for the man who followed a string of burros across a desert, leaving a smile at every water hole; a pleasant memory on every trail, and a fame that will last as long as men read.

On the east side of Death Valley, and almost directly across from Shorty's grave, a lava statue of a little dog sits and gazes wistfully across the valley. Some folks say that it is the remains of little Sourdough, who perished in the valley's unbearable heat while searching for his beloved master. Other folks just look and wonder. □

Shorty Harris' grave [opposite] in Death Valley. Color photo by Richard Denning, Littlerock, California. Below: Little "Sourdough" faithfully watching for some sign of Shorty. Photo by author.



Leadfield Died of Complications



LEADFIELD, TUCKED away in a hidden pocket high in the Grapevine Mounains, was Death Valley's last boom mining camp. C. C. Julian began its promotion late in 1925. The boom peaked in March, 1926, and was over by the year's end. That may not be a record in boom camp mortality, but it's up there with the contenders.

Leadfield's ghost was ranked one of Death Valley's outstanding points of interest in 1937, when the Valley's first real guidebook was compiled by the Federal Writers' project. But its status seems to have slipped badly since then. Now, usually, it is mentioned only as a way point on the Titus Canyon road. Its history is dismissed as an outrageously fraudulent stock promotion.

It is almost as if Leadfield is being judged by the moral turpitude of its promoter rather than by what happened there and what remains to be seen. On that basis we would lose a lot of ghost towns!

Promotion it was—and outrageous. But a great deal more than that happened at Leadfield, and a lot of evidence remains. Just to create any sort of town in that steep and narrow canyon, remote and ultra-isolated in jumbled desert mountains, was a genuine achievement. To then bring more than a thousand people into that canyon in one day, feed them, entertain them, and return them without incident to Beatty, 22 miles away, was a dazzling performance. And the thought of those 94 overloaded 1926-and-earlier vintage autos and autostages transporting the throng down that precipitous grade into camp, and grinding back out with them, gives me the mild shakes.

You can say this for Julian, too—he at least took his potential investors to have a look into the hole into which their money was to be poured. He did have a hole to show them, with ore in it. His Western Lead stock was based on more than printer's ink. An authentic discovery of lead-silver ore had been made in this canyon in 1905 by prospectors Seaman and Barney McCann. Probably the best estimate of its surface value was made by the California Division of Mines in 1938: "At various points for a distance of about two miles, galena is disseminated in hard blue limestone. The ore bodies exposed carry from five to seven percent lead, with five ounces of silver (per ton) and five to six percent zinc."

At that time the only way to reach the Leadfield district was through Titus Canyon, and Titus Canyon had no road at all. Unless it was sorted or concentrated, such ore would not pay to pack out on animals. So nothing seems to have been done about the discovery until March, 1924, when Ben Chambers and F. J. Metz, prospecting the ledges, located 16 claims. C. C. Julian entered the picture when John Salsberry, who had been grubstaking Chambers, brought him to see the property.

Why Julian, one of the most famous—and notorious—of the big oil promoters should have embarked on this mining scheme at such a time—and in such a place—remains a question. Perhaps it was Death Valley's built-in advertising potential that intrigued him. He bought the claims in July, 1925, and, although they were a mile and a half inside California, incorporated his Western Lead Mines Company in Nevada.

He is quoted as saying, at Leadfield: "Death Valley—that's my baby!" If he did, Death Valley—and the California Corporation Commission—proved him wrong.





by HAROLD O. WEIGHT

Leadfield [above] at the peak of its boom in March, 1926. Mining operations [left] in Leadfield Canyon when C. C. Julian was promoting Western Lead Mines. The town is at the far left. Tonopah Times-Bonanza *photos from S. W. Paher collection. Julian's Leadfield road [below] plunges down Grapevine Mounains to the site of the boom camp. Costing between $60,000 to $100,000, it made possible today's spectacular Titus Canyon tour. Photo by Harold O. Weight.*

When Julian organized Western Lead, his reputation was under attack for his greatest promotion, Julian Petroleum Company, in which investors eventually lost millions of dollars. He supposedly had relinquished control of "Julian Pete" to S. C. Lewis in December, 1924. It was under Lewis that there was an over-issue of millions of shares of stock, and the company collapsed. Despite investigation, Julian was not indicted nor was he ever prosecuted.

Authorities and many individuals continued to believe, however, that investors had been lured to buy the stock through Julian's over-inflated promotion, and that he did profit from the stock manipulation. From the beginning, his Death Valley operation was under the unfriendly scrutiny of the California Corporation Commission, poised to crack down.

By January 1, 1926, Western Lead controlled 42 claims, and had some 60 men prospecting, mining and building roads. A geology report by a University of California professor projected a possible valuable ore body at the contact zone between limestone and quartzite. A tunnel was started to intersect that point. Plans also were announced to drill a 2500-foot tunnel to strike a supposed ore body 1000 feet beneath the apex of the hill. A concentrator with 500 tons daily capacity was to be built to concentrate the expected ore to 40 percent lead, 60 percent silver, for shipment.

In time the Berger tunnel would be driven 1200 feet to the contact. The concrete foundation for the concentrator would be poured.

Julian's first problem was transportation. Titus Canyon remained Leadfield's sole connection to the outside world. Beatty, the only available rail point, was less than 20 air miles from the camp. But by the only route available, it was estimated to be 60. Freight to reach Leadfield had to be hauled from Beatty up through Daylight Pass in the Grapevines, down steep Boundary Canyon to Old Stovepipe Wells, up across a rocky bajada to the slit that was Titus Canyon, and some nine miles up to the canyon bed in which no road could be maintained through the summer cloudbursts.

Obviously, a boom camp could not be built or supplied by that route. But on all other sides of Leadfield Valley, ridges of the Grapevine rise abruptly. The lowest





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BY KEN MARQUISS

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gap—Red Pass—is a thousand feet above Leadfield. To put a freight road through there seemed impossible. But, starting in December 1925, Julian soon had a hundred men full time on the project. Most of them were miners or prospectors, but then, it was as much mining as road building. Before the end of February, 1926, Julian's miners had blasted and cut the road through and around the mountain ridges and continued it out to meet the Beatty-Death Valley road. Trucks started moving powder, steel, machinery and supplies into Leadfield.

Julian had opened more than a freight road. The Leadfield *Chronicle* was lyrical: "At some places there is a sheer drop into the valley immediately below, and the sunshine in this valley, the blackness of deep canyons in the distant Grapevines, the blue of the Panamints across Death Valley, and the snow covered tips of the Sierras make a stirring mountain scenery." Jo P. Carroll, Randsburg newsman and one of the first to travel the road, predicted it would be one of the thrilling mountain roads of California.

And Bourke Lee summed it up after the boom was over (in his "Death Valley," 1930): "The Leadfield road cost $100,000. It is worth it."

Travelers along the Leadfield road, and there are many today, will not find these opinions exaggeration. Myself, I would have trouble describing the view as you come down into Leadfield. Each time I've driven it, I've been too busy watching the road. I understand Carroll's caution to Julian that when he brought investors, he had better have on hand "good brakes, experienced drivers and a couple of doctors."

That road is the Leadfield boom's one real and lasting achievement. And though guide books and National Park Service markers fail to mention it, it is only because the Leadfield road was built that Death Valley visitors today can enjoy one of the Valley's most spectacular attractions—the Titus Canyon tour. The auto trail through narrow cliff-walled Titus—which is closed from mid-May to mid-October because of flash flood possibilities—is one-way, down canyon. You must start at the top, and you can only reach that starting point via the Leadfield road and Leadfield. And today, the road still is recommended only for experienced back road drivers.

The odds are enormous that if Julian had not built his road, the Titus Canyon tour, which is the Death Valley high point for many visitors, would not now exist. In the early days of Death Valley National Monument, there were immediate needs for all the limited funds available. Today, construction of such a road would be resisted ferociously as mortal ecological sin.

Julian opened sales headquarters in Los Angeles in January, 1926. And, although Western Lead had been denied a stock sales permit by the California Corporations Commission, subscription to the stock was opened on January 29. Four sets of salesmen were needed to handle the lines waiting with cash or certified checks. The next day the stock opened on the Los Angeles stock ex-

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Visitors will find Leadfield's sheet-metal buildings surprisingly unchanged from this picture, taken twenty-five years ago.

change at $1.50 a share and closed at $1.57, with 40,000 shares traded.

Western Lead continued to rise steadily until mid-March, when in one day 300,000 shares were sold, with a closing quotation of $3.30 a share. Then the California Corporation Commission summoned 11 Los Angeles brokers handling the stock to appear to determine if their sale of Western Lead was "unfair, unjust, or inequitable to the purchaser thereof." The effect was immediate. In two days, March 15 and 16, Western Lead dropped 175 points.

March 19, the Associated Press reported: "Western Lead stock soared, slumped, skidded, and bumped up and down the scale from a $1.75 opening to a $1.50 close in what is described as the wildest day the Los Angeles stock market has evern known." During the excitement one man was knocked down and a woman fainted.

Julian sought an order restraining Commissioner E. M. Daugherty from interfering with sale of Western Lead stock. Later he filed a $350,000 damage suite against Daugherty, executives of the Los Angeles *Times* and others, charging conspiracy to bring about a collapse of Western Lead. Neither move succeeded.

Conspiracy or no, Commissioner Daugherty's timing was perfect. With the Leadfield road completed, Julian had put his Leadfield promotion into high gear, with full page ads and the able assistance of newsmen and newspapers. His prime publicity stunt—what was to have been only the first of a series of luxury weekend tours of the camp for potential Los Angeles investors, by Tonopah &Tidewater special trains—was scheduled.

That excursion was carried through, and proclaimed a success in the March 22 Leadfield *Chronicle*:

3000 ATTEND UNIQUE
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"The Julian special train from Los Angeles—12 Pullmans, two diners and a baggage car, pulled into the Tonopah & Tidewater station at Beatty at 8:30 Sunday morning. It carried 340 passengers, including 24 women (who) had been selected as the first to see Leadfield out of the 1500 who had asked to make the trip." This group was augumented by 840 people from Tonopah and Goldfield.

The visitors were transported down the Leadfield road in 94 automobiles. At least 1,120 of them were fed a dinner of turkey, pork, beef, salad, "and all the trimmings," while a six-piece Los Angeles group played "jazzy" dinner music. Afterwards, a Tonopah orchestra played for dancers on an open-air floor, "amid blasts from the hills." Serious prospects took a trip to the main tunnel of the Western Lead company, where they were invited to select their own ore specimens.

From this celebration, perhaps, the image of Leadfield has come to us as a sort of false front movie set peopled with slick stock salesmen and their bemused

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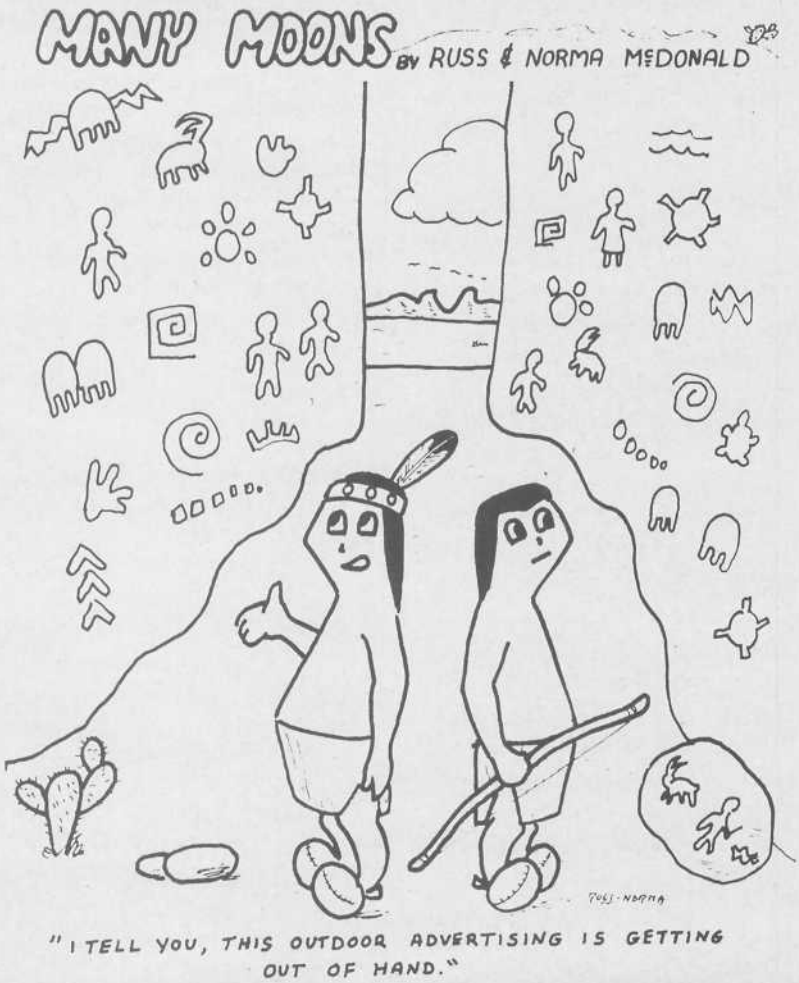
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victims. But real and very human people lived at Leadfield, too, who believed in the camp's future—or hoped for it. People like Dave and Anna Poste and young son Jim, who came to Leadfield from the declining boom camp of Gilbert, Nevada, and later were pioneers of Twentynine Palms. The Postes arrived in Leadfield early in 1926.

"As you came down the hill," Anna remembered, "first there was a couple of little shacks. Then a big garage. Then a little cross street went off—about a block and a half long. Then the first thing on the main street—the only real street—was a saloon, and I think a grocery store on the same side. Across the street was another saloon, and a little farther, I think, another.

"Mostly it was tents. We had a nice big tent with a floor. We were all right! They had graded the main road and thrown all the big rocks over on one side. The road was the other side of the rocks, but we had cleared a way to it. One night, after midnight, I heard some cussing. I got up and peeked out the tent flaps. Here were two fellows, and instead of being in the road, about five feet over, they were walking over all those boulders that had been scraped out.

"They were both prospectors—we knew them. And one named Shorty kept saying, 'Thish ish one helluva shstreet!' And they would climb over those boulders, and fall down every few feet, and the rocks would roll! Their camp was at the end of the street, and they kept in those boulders every foot of the way. Next morning they went to work marching down the middle of the road just like soldiers. It was a fine street then.

"Of course, me—always wanting to grow things—I dug up a bush and there was a little pretty nice soil under it. I put out some radish seed. Leadfield was another place you bought water by the gallon or the barrel, but all our waste water was thrown out on my little patch. And every morning, Shorty and his partner would stop to see if anything had come up. And they'd make comments we could hear in the tent.

"We were there Easter time, so of course I colored Easter eggs for the few little kids around there. Blew the insides out, you know, and colored just the shells. Easter Sunday I had a few eggs left, so I stuck them around in my little garden. Along came Shorty and his partner—and stopped. They'd look at the



Anna and Dave Poste, at the switchboard of Twentynine Palms' first telephone exchange, which they operated, were hopeful residents of Leadfield in the 1926 boom.

garden, and they'd look at each other. No comment. Not a word. Then they marched away. I know they thought they were seeing things."

Dave Poste's first job at Leadfield was to build a school house. The Postes left with the school uncompleted. It never was completed.

Some newspapers, particularly in Nevada, and many people believed that Julian was deliberately wiped out at Leadfield. The Postes were among the Julian supporters.

"No one ever came there he didn't give a job, if they wanted to work," said Anna. "And work they could do. There was one fellow all crippled up—he carried water for the men working on the road."

"He paid five dollars a day for a one-armed water carrier," said Dave.

"They just *broke* Julian," said Anna.

"They did," Dave agreed.

What were probably the final blows for Leadfield came late in 1926. In October, the 1200-foot Berger tunnel reached the limestone-quartzite contact, and the expected ore body was not there. A little galena was scattered through the last few feet, but it was estimated the rock would go only about two percent lead.

Then in November, U.S. District Judge James denied a final petition by Julian Merger Mines for a restraining order prohibiting the corporation commissioner from interfering with Julian stock sales.

The battle was over, but Julian maintained he had not swindled his Leadfield investors. His enemies had done it, he said, by making Western Lead stock worthless.

Julian moved to the Oklahoma oil boom. There he organized the $3,500,-

Continued on Page 46

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NO. 12 IN A SERIES ON CALIFORNIA PALM OASES

Monsen Canyon

by DICK BLOOMQUIST



Monsen Canyon.
Pencil sketch by author.

FROM CORN Spring we travel northwesterly to Monsen Canyon in the Eagle Mountains. The Eagles rise along the northern borderlands of the Colorado Desert, and a portion of the range falls within Joshua Tree National Monument. Earlier in this series, we visited Twentynine and Fortynine palms in the monument's Mojave sector.

Our jumping-off point for the Eagles is Chiriaco Summit along Interstate 10 and about 27 miles east of Indio. This wide spot north of the freeway now bears the name of Joseph Chiriaco; the former designation—Shaver's Summit—honored John Shaver, an early supervisor of Riverside County. The elevation at the Summit is approximately 1700 feet.

A narrow dirt track begins just west of the Chiriaco Summit Trailer Park. After half a mile it crosses the subterranean Colorado River Aqueduct, then enters Joshua Tree National Monument. The road skirts a rocky knoll and soon afterward drops into Lost Palms Canyon wash, with its occasional soft sands. Drivers of low-clearance passenger cars may wish to travel these last two miles on foot rather than risk getting stuck while heading up the wash or turning around at road's end. A water line parallels the roadway as it climbs toward the mountain.

Now within the confines of the Eagle Range, and three and eight-tenths miles from pavement, our route draws even with a bouldered tributary coming in on the right. This is Monsen Canyon, its entrance barricaded by jumbled monoliths. (The road up Lost Palms Canyon may be driven for another two-tenths of a mile beyond the Monsen Canyon fork before it, too, is blocked by rocks.) This tributary was once known as "Jack Fork;" the present name commemorates Frederick Monsen, desert lover and naturalist of an earlier day.

The easiest way to enter Monsen is by scaling a jagged ridge on the right side of the canyon's mouth. A dim trail edged with rock markers leads over this barrier. The pathway may be of Indian origin, or perhaps was built by white men seeking minerals or water. An abandoned pipeline also leads into Monsen Canyon, branching from the main line in Lost Palms Canyon mentioned earlier. Beyond the ridge the canyon floor is free of obstacles and provides easy walking to the palms a fraction of a mile upstream.

Pressed between the mighty walls of the Eagles, Monsen Canyon oasis combines beauty with a feeling of profound remoteness. To casual visitors this little-known watercourse seems inaccessible and uninviting. No motor vehicles can penetrate it, and no signs or maintained trails mark its features. Hence the air of timelessness which pervades its sands and rocks and stands of native palms.

Twenty-seven Washingtonias, the largest 40 to 45 feet tall with trunks over two feet in diameter, make up this first grove in Monsen Canyon. The older trees show fire damage in the form of abbreviated fronds and partly scorched trunks. Water surfaces just below the main cluster, but boulders, water-loving undergrowth, the leaves of a young palm, and a wooden cover mask its location. When I lifted the lid, I found a frog beside the little pool!

Several small willows add their verdure to the oasis, too, along with desert lavender, bladder pod and other species; yuccas and a few ocotillos grace the slopes. Beyond the last palms erosion has hollowed out a cave seven feet high and ten feet deep in the granite wall of the arroyo. As I explored the

oasis, a canyon wren repeatedly tripped down the scale in liquid cadence. This red-brown cliff dweller with the cocked tail fills many a desert fastness with his exuberant song.

A tributary with 17 palms near its mouth joins Monsen Canyon from the right just below the main grove, making a total of 44 Washingtonias for this corner of the Eagle Mountains. (There are several other groups farther up the main canyon and in other forks, however.) The tributary palms are smaller than those in Monsen, although two or three do approach 35 feet in height. Four adjoining trees have blended their beige skirts to form a shaggy canopy high enough to stand under. A few yards beyond the palms, a pole with nails driven into it at intervals leans against a cliff, a relic of some forgotten endeavor in the canyon.

Having tramped the lower reaches of Monsen Canyon, let us return downstream to Lost Palms Canyon for a look at the scores of wild Washingtonias strung along its rugged course. □

Mileage Log

0.0 Chiriaco Summit, 27 miles east of Indio along Interstate 10. Drive north toward the Eagle Mountains on a dirt road which starts just west of the Chiriaco Summit Trailer Park.

0.6 Enter Joshua Tree National Monument. No camping or fires allowed.

1.7 Enter Lost Palms Canyon wash. **Soft sand in places from this point on.** It may be advisable, depending on conditions, to park passenger cars on the near side of the wash and cover the final two miles to Monsen Canyon on foot.

3.8 Monsen Canyon comes in on right. The palms are less than a half-mile up the canyon. Elevation at oasis about 2875 feet.

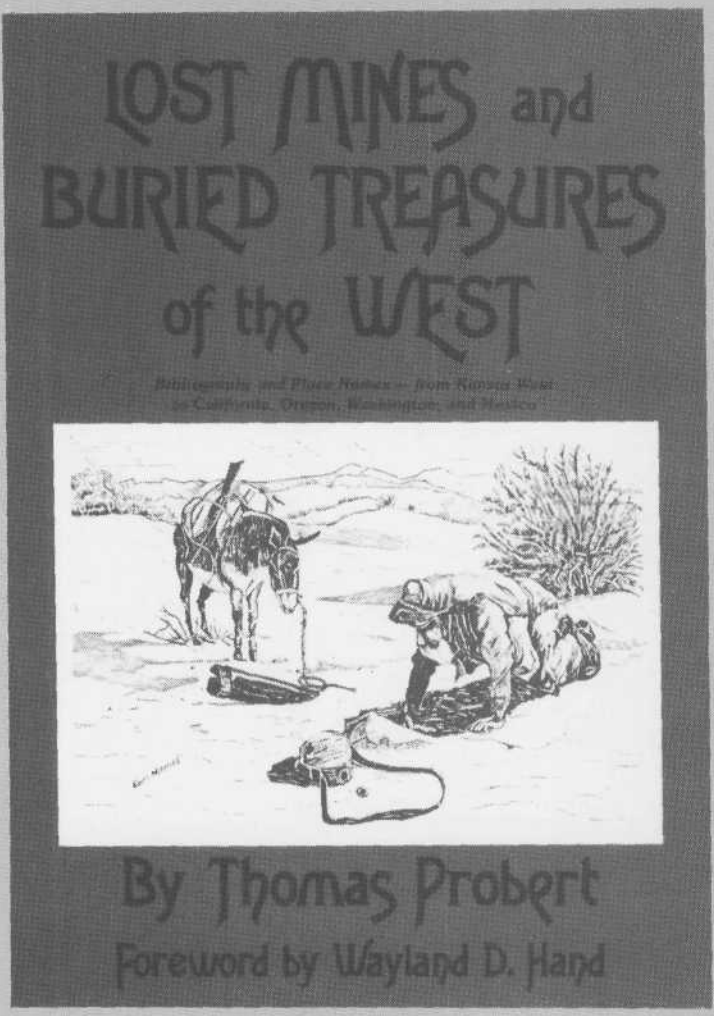
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Desert GHOSTS

by HOWARD NEAL

Schwab, California

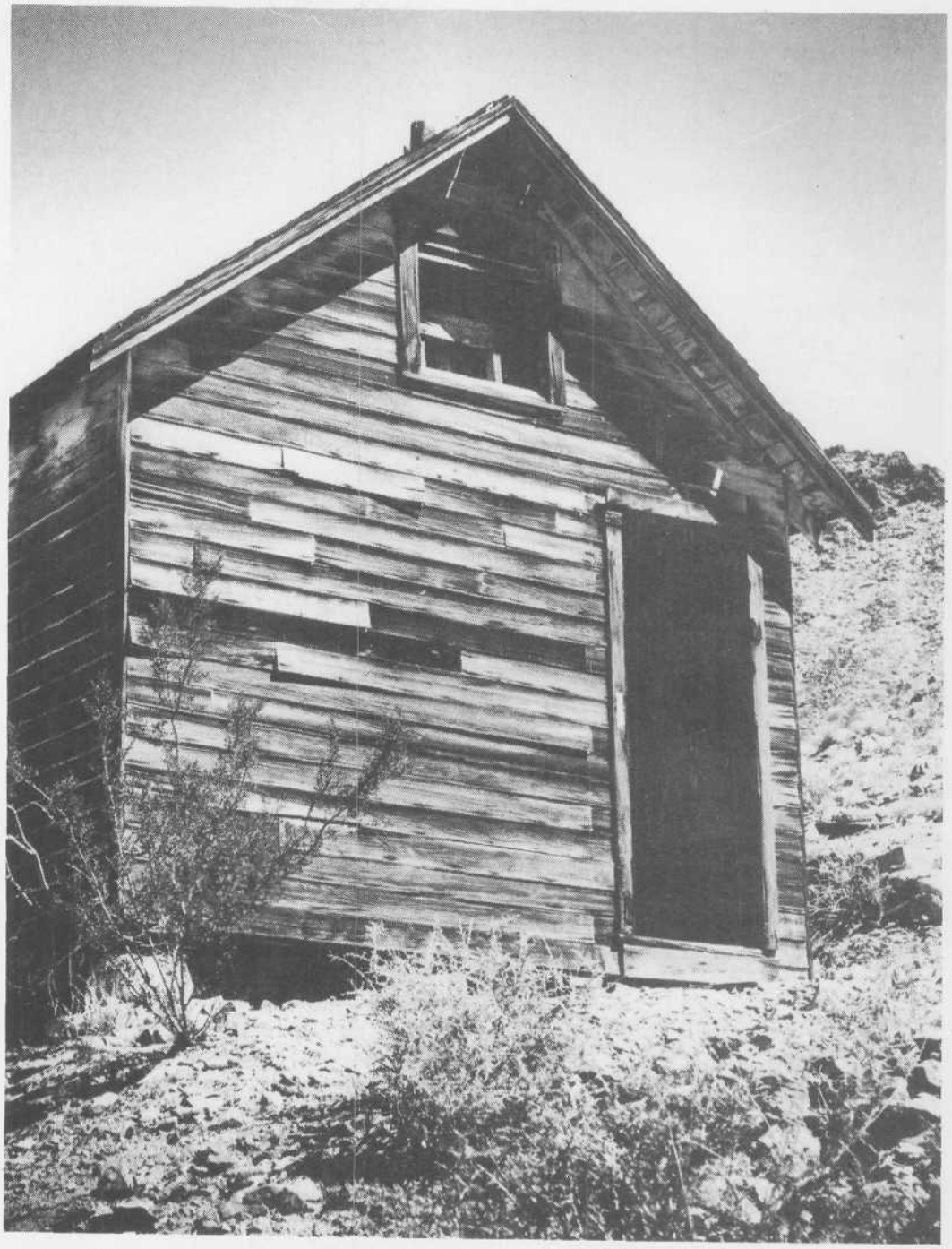
DURING THE years that surrounded the turn from the 19th to the 20 century, the loud cry that echoed out of Death Valley was "GOLD!" The fabulous wealth discovered, to the north, at Goldfield and Tonopah had flooded the countryside with prospectors seeking other rich bonanzas. As soon as such finds as Bullfrog, Rhyolite, Greenwater and Skidoo were announced the prospectors were quickly followed by miners, stock promoters, camp followers and their women. Towns quickly were born. Equally quickly they died.

One such quick boom town was Schwab. It lasted little more than a year. Gold was first discovered along the upper reaches of Echo Wash, in Death Valley's Funeral Mountains, in 1905. As was the pattern, a town was built. It was named for Charles M. Schwab.

Charlie Schwab was one of America's most famous financiers of the early 20th century. At one time he was President of the United States Steel Corporation, and at the time of the Echo Canyon discovery was in the throes of consolidating his hold on Bethlehem Steel. Schwab was perhaps even better known in Death Valley country for his interest in western mine development and promotion. Within a few miles of the town which bore his name, he acquired a major interest in the leading mine at Rhyolite.

So, the name Schwab went on the California map. Perhaps the hope was that the gold strike at Schwab would be as rich as its namesake. If so, that hope was not fulfilled. The gold veins disappeared almost as quickly as they were discovered.

Although the initial cycle of boom and bust did not take long at Schwab, the area did have a revival, of sorts, some 20 years later. At the



Homes, as well as mining equipment and machinery, have been abandoned to the desert elements at Schwab.

time of its second birth it was called Inyo Mines. Most of the gold was washed from the sands of the wash and production was sustained long enough for a mill and a number of other structures to be built at the site.

Today, the once booming, but short lived community of Schwab is a true ghost town. In contrast with so many other Death Valley "ghosts," it is still there. The last resident apparently departed shortly before World War II, but many of the structures remain in various stages of disrepair. They, as yet, have not been destroyed by either the heat of Death Valley or the seemingly inevitable onslaught of vandals.

To visit Schwab it is necessary to follow a so-called Jeep Trail for nearly nine miles through Echo Canyon into the Funeral Mountains. The road is relatively easy, but the National Park Service recommends a four-wheel-drive vehicle. The road winds its way up a narrow canyon and provides one of the most scenic side trips that can be made by the visitor to Death Valley. Approximately half way into the canyon (four and one-half miles of dirt road) there is a natural window eroded out of the high canyon wall. It is known as the "Eye of the Needle." Finally, as the Jeep Trail winds higher the canyon widens into a small valley. The road forks, here, and the ghost town of Schwab is less than two miles beyond, up the fork which leads to the right.

The trip to Schwab, a fascinating half-day journey from Furnace Creek, rewards the present day Death Valley explorer with some of the Monument's best scenery, an easy visit to the back country, and a real, genuine ghost town.

The dirt road to Schwab starts on California Highway 190, two miles east of the highway junction at Death Valley's Furnace Creek Inc. The road is marked by a small sign: "Echo Canyon Jeep Road." □





Above: Today, the ghost town of Schwab consists of no more than a dozen structures in various stages of disrepair. In 1907 the mining camp had a population of more than 200, a post office, and a daily stage to Rhyolite. Below: Schwab is one of the few Death Valley ghost towns which has buildings that are still standing. Most of the structures date from the early 1920s when mining activity had a re-birth and the settlement was known as Inyo Mines. Photographs by Edward Neal.

The Trading Post

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Calendar of Events

This column is a public service and there is no charge for listing your event or meeting—so take advantage of the space by sending in your announcement. We must receive the information at least three months prior to the event.

NOVEMBER 5 & 6, Gem and Mineral Show sponsored by the Montebello Mineral and Lapidary Society, Gardens Masonic Temple, 6310 East Olympic Blvd., East Los Angeles, Calif.

NOVEMBER 5 & 6, Bear Gulch Rock Club's 15th Annual Gem and Mineral Show, Masonic Hall, 1025 N. Vine Avenue, Ontario, Calif. Exhibits, demonstrations, free parking and admission. Dealer space filled.

NOVEMBER 10-13, Death Valley Encampment, in the Stovepipe Wells and Furnace Creek areas of the National Monument. Hotel accommodations limited, so make reservations early or plan to "camp under the desert stars." Campfire meetings, historical talks, guided tours and exhibits. Fun for the whole family.

NOVEMBER 19 & 20, Gem and Mineral Show hosted by the Mineralogical Society of Southern California. 30th Annual Show. Pasadena Center, 300 East Green St., Pasadena, Calif. Displays, dealers, outstanding exhibits. Admission $1.25. Contact: Rock H. Currier, P. O. Box 8252, San marino, Calif. 91108.

NOV. 26-DEC. 3, annual Indian arts and crafts exhibit at the Heard Museum, 22 East Monte Vista Rd., Phoenix, Arizona 85004. Works of tribes from all over the United States, Mexico and Canada on display for 9 days and will be sold during the first 5.

DECEMBER 3&4, 8th Annual "Red Carpet" Gem and Mineral Show, Santa Monica Civic Auditorium, 1855 Main Street, Santa Monica, Calif. professional and amateur gemstone, mineral and fossil displays; demonstrations, retail dealers. Admission $2.25.

JANUARY 6-8, All State Gem and Mineral 2nd Annual Indoor Show & Sale, sponsored by Tailgaters Assn. Casa de Manana Building, California Midwinter Fair Grounds. Freed admission, parking.

JANUARY 28 & 29, 29th annual gem show, "Prospectors Paradise," Santa Ana Armory, 612 E. Warner, National Guard Armory, Santa Ana, Calif. Free admission and parking.

HIDDEN DUNES

Continued from Page 27

tion has occurred, talc deposits which can be mined commercially are not extensive.

Most talc is prepared for market by first crushing in jaw or rotary crushers then grinding in roller mills in closed circuit with air separators. This procedure yields talc as finely ground as 99.5 percent through 225 mesh.

Talc plays an important role in our everyday lives. We are introduced to it shortly after birth when dusted following baths and diaper changes. Only the light-colored, chemically pure talc of highest quality is used for powders and pharmaceuticals.

California's average talc production is around 150,000 short tons yearly. About 65 percent of it is used in the ceramic industry where white-firing talc of stable uniformity is required. Wall tile manufacturers use another 15 percent of the production. They prefer talc with a high tremolite content that is free of any impurities such as iron or manganese oxides. The talc from the mines in the Ibex Range met those requirements. For this use, it was rather coarsely ground so that 92 to 98 percent would pass through a 200 mesh screen.

Talc is also used as an ingredient in the manufacture of electrical insulators, paper, asphalt filler and insecticides. The rubber industry uses it as a lubricant—both dry and in water suspension. It may interest housewives to know that talc is used as a polish to remove the hulls from rice and as a sizing in cotton fabrics.

To the rockhound, talc is #1 on Moh's Scale of Hardness; an interesting, soapy-feeling mineral specimen, and often a material which can easily be carved into a variety of forms. We generally think of talc as white in color, but it also occurs in pale shades of green, brown, pink and grey.

Yes, November and Death Valley are synonymous. It is the time to revisit the colorful, familiar places—to fill the soul with Nature's beauty and to find one of the Valley's hidden secrets. Death Valley country always seems to offer something new for those who take the time to find their own *patio de recreo del desierto.* □

LEADFIELD

Continued from Page 39

000 Julian Oil and Royalties Company. A Federal grand jury indicted him there for using the mails to defraud. Trial was set for February, 1933, but Julian jumped the $25,000 bail friends had made for him, and vanished.

He arrived in Shanghai, China, in March 1933. He was innocent of the charges, he insisted, but could not have gotten a fair trial in Oklahoma. Here he defied attempts to extradite him and even made one more attempt at promotion—the Stock & Bond Guaranty Company. He would, he said, remain in China and engage in oil development.

But on March 25, 1934, after a "glittering" dinner party at a leading Shanghai hotel, Julian committed suicide by taking poison. He was 40 years old and broke. It was eight years almost to the day, after the Leadfield boom was broken at its peak.

Bourke Lee wrote: "Leadfield did not die because of lack of ore or transportation. Leadfield died of complications. Miners tell me Leadfield will be a big mine one day."

About the complications, Lee was right. About the big mine, it would seem his miner friends were wrong. Most people approved then and approve now the action of the California Corporation Commission in ending the Leadfield boom. Julian's later actions would seem to prove they were right. But we will never know whether the camp, honestly financed and developed, would have made that big mine. We'll never know whether that once, Julian, as he protested, was making an honest effort to develop it.

In 1930, Bourke Lee wrote that mountain sheep outnumbered travelers on the Leadfield road. That certainly no longer is true. Last fall, while I sat on the hill back of Leadfield, visitors kept coming through—once even a small caravan. Most of them stopped in Leadfield just long enough to read the Park Service's inadequate marker there, then hurried on to Titus Canyon.

Some day—perhaps—there will be another sign along that road, to catch their fleeting attention: "You are making this trip through the courtesy of C. C. Julian and his unhappy investors." □

Letters to the Editor

Letters requesting answers must include stamped self-addressed envelope

General Patton Update . . .

I very much enjoyed the article by Bill Jennings in the September issue of *Desert Magazine*. There is, however, some additional information that I would like to submit and one clarification that I would like to add.

The "Camp Young—Patton Historical Society" mentioned in the article is presided over by Gary Shaw and that organization deals more specifically with the area of research and history of the Patton Country named in the article. If anyone would like further information they can contact Gary at 17350 E. Temple Ave., #342, La Puente, Cal. 91744.

The George S. Patton, Jr. Historical Society, which was founded and is presided over by myself, is primarily involved in the area of research about the life of General Patton. The Society here in San Diego deals mainly in archivist activities, lectures and publishing the General's writings.

Gary and I have worked closely in the past and we both continue to find and share as much possible data concerning the General as is available. If anyone would like further information about General Patton, they may contact either Gary or me.

CHARLES M. PROVINCE,
11307 Velva Drive,
San Diego, Calif. 92126.

More on the Pony . . .

The Mary Frances Strong article, "Trailing the Pony in Nevada," August 1977, was very interesting. The stories of the Pony Express have always intrigued me, and we have visited most of the station locations through this area.

I'd like to correct or add to her story a bit. She states "Stop #3 is Fort Churchill State Park—a former Pony Express relay station." Fort Churchill was a stop for the Pony Express in the later months of its life, but the relay station was a mile or so southeast on the Carson River crossing at the old Buckland ranch and toll bridge. This is now refered to as Weeks, Nevada. It is from Buckland's that "Pony Bob" Haslam made his famous long ride of 380 miles in 36 hours, through hostile Indian territory.

When the Pony route was begun in April, 1860, no one had ever heard of Fort Churchill. The following month, the Paiute Indians went on the warpath and many white people were murdered. So army troops were sent to the area to quell the uprising and they established headquarters just over the rise and up the river a bit from Buckland's. In July 1860, they began erecting Fort Churchill buildings from adobe brick made right on the location.

On its completion the last of October, Fort Churchill became a stop for the Pony run for the remaining Pony days, but it was neither a change nor relay station as was Buckland's. Buckland's ranch remained through the years and was a very important station on the Overland Trail. (It was the first county seat of Churchill County in territorial Nevada days.)

After Fort Churchill was abandoned (1869), Sam Buckland bought the removable lumber for $750, and built the large, white, two-story frame building still remaining on the ranch near the highway bridge. It was used as a family home and as a hotel for travelers.

RUBY ROBISON,
Fallon, Nevada.

Salutes Desert . . .

Forty years this month the first issue of *Desert Magazine* came off the press at Wolfer's in Los Angeles. Our pressrun was 6000 copies, all in black and white except for the cover. You have made spectacular changes in recent years, and it is not surprising that you have gained in circulation and prestige. Your use of four colors throughout, combined with the artful display headings have captured the attention of more readers, and the readable stye of your writers equals the best produced in this country.

As you know, Randall Henderson and I were co-publishers at the beginning, he taking the role of editor and I as business manager combed the west for advertising and circulation support. My resources were exhausted in 1939 and I moved my family north. Randall continued as editor for 20 years, moving the offices and plant from El Centro to Palm Desert. The publication did not produce a recognizable profit until after World War II.

In 1972, two years after Randall's death, I wrote a book, "Desert Editor," which Cyria, his widow, published. I have read each of the 480 issues of *Desert Magazine*, but I have donated my file of the first 38 years to the Western History Research Center at the University of Wyoming at Laramie. It is my hope that researchers of the desert southwest will find this file useful in the future. Randall and I, lacking resources to pay writers, used pseudonyms for bylines on many of the early issues.

In a few months I shall be 70 years old and, as old will do, I look back on the events of the 30s with a special relish and satisfaction. Last October my wife of 43 years, Lee Ruth, died. I remain in our retirement home in the foothills of the Sierra where I continue to pound away on my ancient Royal.

My sincere congratulations as *Desert Magazine* enters its 41st year of publication.

J. WILSON McKENNEY,
Georgetown, California.

Yucca Corrections . . .

In the August issue of *Desert Magazine*, in the article "A Desert Blessing," it seems to me that there are a number of errors which stand in need of correction.

In the fourth paragraph it states "About 30 species grow in an area from the sand hills of Nebraska to Southern California, *always in arid regions*." Several of the species in this range grow high in the mountains associated with pines and oaks where the rainfall averages 20 inches or more. In addition, a number of our most ornamental species are native to the Eastern Coastal plain from Delaware to Florida and westward. *Yucca Arkansana Trelease* is common in Kentucky where it receives as much as 50 inches of rainfall annually.

In the same paragraph "Agave" and in the following paragraph "century plant" and "maguey" are all names for the genus Agave. Although recent botanists have endeavored to link yuccas and agaves together, to me the yuccas belong as they have in the past to the lily family (Liliaceae) while the agaves belong to the amaryllis or Amaryllidaceae.

Paragraph six, "Only the Pronuba of all the infinite variety of insects is able to penetrate to the heart of the yucca bloom." Wrong. Most yucca blooms when ready for fertilization are wide open and many species of beetles and other small winged insects are usually busily crawling about in them. Whether the moths "flits from flower to flower" is questionable.

In the final paragraph, it is intimated that the Pronuba fertilizes the flowers of the agaves as well as the yuccas. This I think is unlikely; the agave flowers are structurally quite different from yucca flowers. The anthers are carried well outside the flowers on long slender filaments in most species while the style is rather deeply recessed within the throat. Agave flowers secrete a considerable amount of nectar which attracts many species of birds and large insects as well as two known species of bats. These seem to carry on the polinization chores as well.

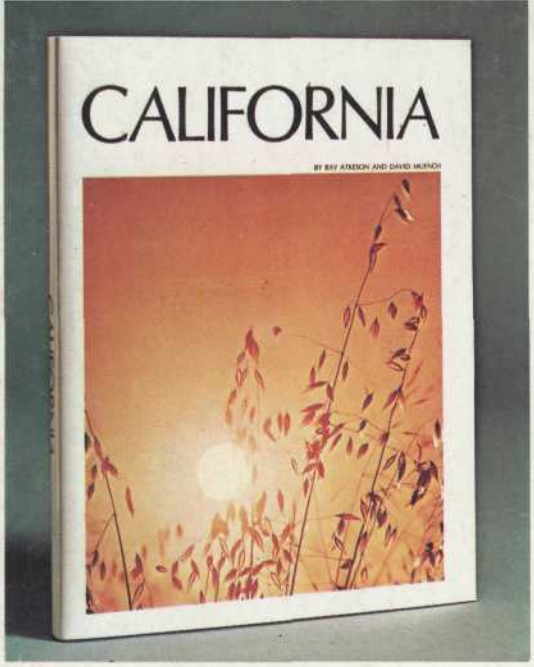
GEORGE OLIN,
Ajo, Arizona.

Callao Memories . . .

Hartt Wixom's article about Callao, Utah (*Desert*, August 1977) brought back so many pleasant memories, that I hesitated to call attention to a minor error.

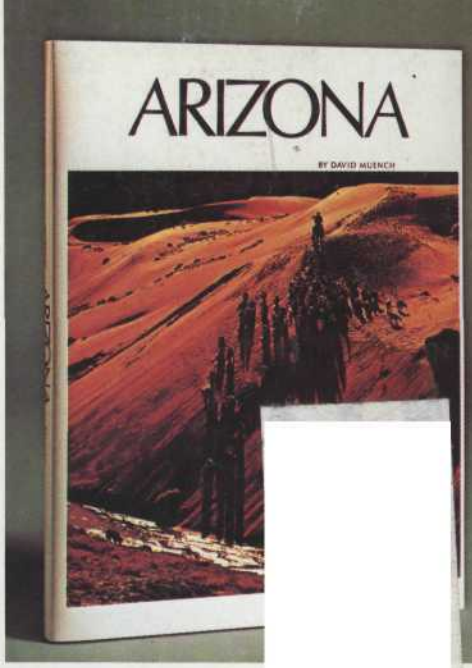
Wixom claimed Haystack Peak (12,101 feet) was the highest point between the Uinta Mountains in Utah and the Sierra Nevadas. There are at least two peaks in Nevada that are higher. One is Wheeler Peak (13,063 feet) in the Snake Range, White Pine County, and the other, of course, is Boundary Peak (13,145 feet) in the White Mountains of Esmeralda County, and the highest point in Nevada.

HAROLD J. EGOSCUE,
A former Nevadan and Utahan,
Kensington, Maryland.

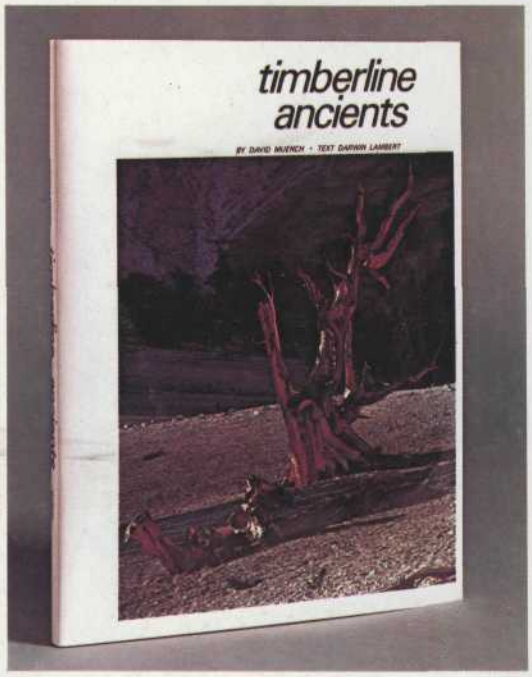


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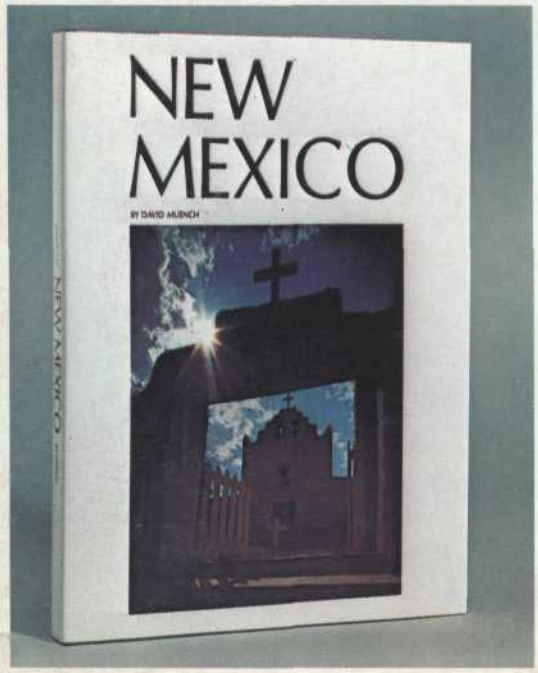
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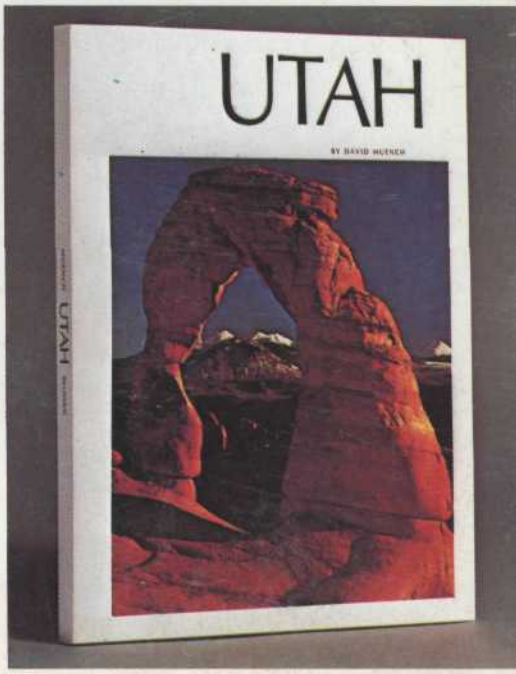
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