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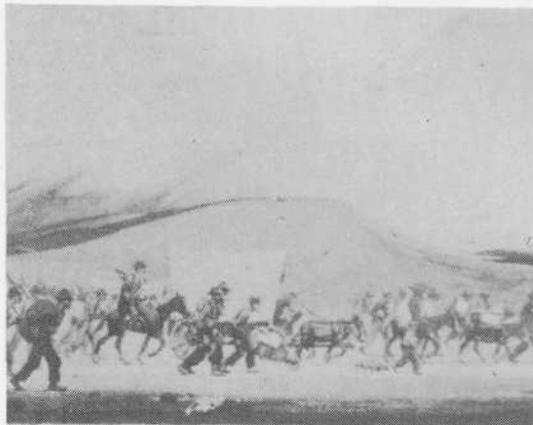
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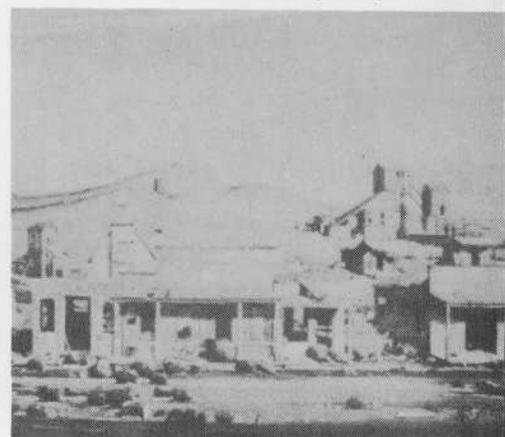
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The Mining Town



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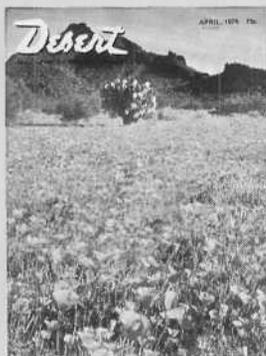
Volume 39, Number 4

APRIL 1976

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THE COVER:
Poppy spread below Eagle
Eye Peak, Aguila, Ariz.
Photo by David Muench,
Santa Barbara, Calif.

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A Peek in the Publisher's Poke

HIS MONTH'S issue provides a varied menu with some fine new authors entering the fold. Guest author and Editor of *Popular Archaeology*, Wm. Jack Hranicky presents the first of a two-part article on archeology in America. It is informative without being too technical and explains the various phases from site surveying to the final interpretation.

Western Art is absent in April, giving way to Mother Nature and the phenomena of desert wildflowers. Park ranger-biologist, Paul Johnson, from the Anza-Borrego Desert State Park, explains just what makes the desert burst forth into bloom. Due to the long and unseasonal drought in Southern California, the prospect for a grand display of wildflowers is not too good, although the heavy February rains have germinated some species.

One popular feature of the West is ghost towns and the state of Idaho has its share of good ones. This fact is well documented by Gary Smith as he visited them as part of last summer's vacation. Please note that some of these areas are privately owned and others protected by state laws. Always seek permission before entering private property.

The West comes to life again in historic Tombstone, Arizona, where "The Wild Bunch" is whooping it up! No, not a gang of cutthroats, just a happy-go-lucky theatrical group that is bringing pleasure to any who catch their acts. Deke Lowe brings us up to date on their antics.

Ernie Cowan visits a lofty canyon in Death Valley and presents a vivid account of his trip to Trail Canyon with both lens and typewriter.

Naturalist K. L. Boynton reveals the wonderful world of the saguaro and brings George Olin, retired National Park Service biologist, author-photographer and long-time contributor to *Desert*

Magazine, back to our pages after a long absence. The stately saguaro could rightly be called "King of the Sonoran Desert," for he reigns over a vast array of flora and fauna.

Newcomer Vivian Van Vick gets us all thinking about cool summer vacations in a fascinating setting in Oregon. This is a recreational complex operated by an Indian tribe and is destined to be popular with many of our readers.

Field Trip Editor Mary Frances Strong takes us to "Bedrock Canyon and Beyond," ending up in the mysterious Trona Pinnacles, but only after camping in the Lava Mountains and searching for jasp-agate.

Richard Taylor throws all those Peglophiles a curve with a narrative that places the Pegleg gold in Nevada. Just to round things out, Glenn and Martha Vargas do not ramble on about rocks but tell a tale about World War I and how it affected the little port of Santa Rosalia in Baja California.

And don't forget, our Book Shop and Art Gallery are open for the season on Saturdays from 10 'til 3. Be sure to drop by and say hello if you're passing our way.

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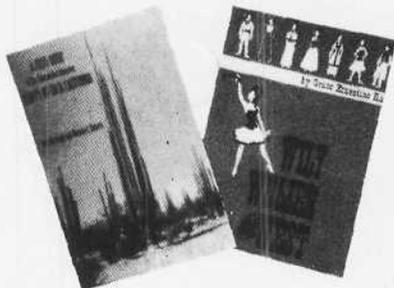
BOOKS OF

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. Paperback, illustrated, 98 pages, \$3.00.

BOTTLE COLLECTOR'S HANDBOOK by John T. Yount. Contains a listing of 1850 bottles and their market value (including the prized Jim Beams), where to sell and buy, identifications, etc. Paperback, 89 pages, \$3.95.

DESERT WILDLIFE by Edmund C. Jaeger is a series of intimate and authentic sketches depicting the lives of native animals of our Southwestern deserts, from mammals to birds and reptiles, as well as many of the lesser desert denizens such as land snails, scorpions, millepedes and common insects. Paperback, well illustrated, 308 pages, \$2.95.

BACK ROADS OF CALIFORNIA by Earl Tholander 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. Hardcover, large format, unusually beautiful illustrations, 207 pages, \$10.95.



GHOST TOWNS OF ARIZONA by James and Barbara Sherman. If you are looking for a ghost town in Arizona this is your waybill. Illustrated, maps, townships, range, co-ordinates, history, and other details make this one of the best ghost town books ever published. Large 9x11 format, heavy paperback, 208 pages, \$4.95.

EXPLORING THE GHOST TOWN DESERT by Roberta Martin Starry. Colorful history of the Mojave Desert's Rand district in California. Describes the ghost towns, abandoned mine camps, freighter trails, Chinese camps and rock, bottle and relic collecting areas. Paperback, \$1.95.

RUFUS, by Rutherford Montgomery. From one of America's best-loved children's nature writers comes the story of Rufus, a fierce and proud bobcat struggling against nature and man. As Rufus grows and matures, his exciting adventures make fascinating reading for adults and children alike. Hardcover, 137 pages, \$4.95.

REPTILES AND AMPHIBIANS OF THE AMERICAN SOUTHWEST by M. M. Heymann. Features 68 species, all in beautiful four-color photographs. Descriptions are stated in simple, non-technical terms. Extensive text tells of their origins and life-styles today. Extremely useful book for all who enjoy watching and learning about wildlife. Paperback, 77 pages, \$4.95.

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 available. First published in 1956, it is in its 7th 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.

NAVAJO RUGS, Past, Present and Future by Gilbert S. Maxwell. Concerns the history, legends and descriptions of Navajo rugs. Full color photographs. Paperback, \$3.50.



GOLD RUSHES AND MINING CAMPS OF THE EARLY AMERICAN WEST by Vardis Fisher and Opal Laurel Holmes. Few are better prepared than Vardis Fisher to write of the gold rushes and mining camps of the West. He brings together all the men and women, all the fascinating ingredients, all the violent contrasts which go to make up one of the most enthralling chapters in American history. 300 illustrations from photographs. Large format, hardcover, boxed, 466 pages, \$17.95.

SOUTHERN IDAHO GHOST TOWNS by Wayne Sparling. 84 ghost towns are described, along with the history and highlights of each. The author has visited these sites by pickup, 4WD and by foot. 95 photographs accompany the text and maps detail the location of the camps. An excellent reference to add to the libraries of those fascinated by Western history. Paperback, 135 pages, \$3.95.

THE ROCKS BEGIN TO SPEAK by LaVan Martineau. The authors tells how his interest in rock writing led to years of study and how he has learned that many—especially the complex petroglyphs—are historical accounts of actual events. Hardcover, well illustrated, glossary, bibliography, 210 pages, \$8.95.

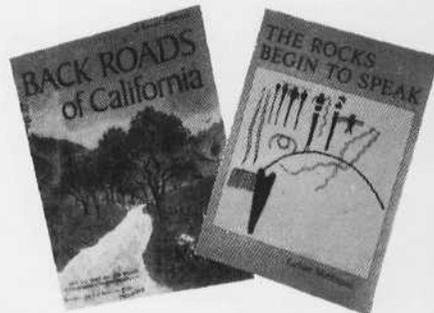
GHOST TOWNS OF THE COLORADO ROCKIES by Robert L. Brown. Written by the author of *Jeep Trails to Colorado Ghost Towns*, this book deals with ghost towns accessible by passenger car. Gives directions and maps for finding towns along with historical backgrounds. Hardcover, 401 pages, \$7.95.

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 Rosamond-Mohave area, the El Paso Mountains, Randsburg and Barstow areas, and many more. Paperback, 112 pages, \$4.95.

ENCOUNTER WITH AN ANGRY GOD by Carobeth Laird. A fascinating true story of the author's marriages to anthropologist John Peabody Harrington, the "angry god," and to the remarkable Chemehuevi Indian, George Laird. The appeal of this amazing memoir is so broad it has drawn rave reviews throughout the country and is being hailed as a classic. Hardcover, 230 pages, \$8.95.

HOW TO DO PERMANENT SANDPAINTING by David and Jean Villasenor. Instructions for the permanent adaptation of this age old ephemeral art of the Indians of the Greater Southwest is given including where to find the materials, preparation, how to color sand artificially, making and transferring patterns, etc. Also gives descriptions and meanings of the various Indian signs used. Well illustrated, paperback, 34 pages, \$2.50.

GOLDEN CHIA by Harrison Doyle. This book illustrates the great difference between the high desert chia, and the Mexican variety presently sold in the health food stores. It identifies the energy-factor, a little-known trace mineral found only in the high desert seeds. Also includes a section of vitamins, minerals, proteins, enzymes, etc., needed for good nutrition. Referred to as "the only reference book in America on this ancient Indian energy food." 100 pages, illustrated, Paperback, \$4.75; Cloth Cover, \$7.75.



MEXICO GUIDE by Cliff Cross. All new, revised edition with excellent information on trailer parks, hotels, camping space; tips on border crossing, shopping, fishing, hunting, etc., as well as the history, culture and geography. 210 maps, 675 photos, 195 pages, \$4.95.

HISTORICAL ATLAS OF CALIFORNIA by Warren A. Beck and Ynez D. Hasse. Extensive documentation and pertinent detail make this atlas a valuable aid to the student, scholar and everyone interested in the Golden State. 101 excellent maps present information on the major faults, early Spanish explorations, Mexican land grants, routes to gold fields, the Butterfield and Pony Express routes, CCC camps, World War II Installations, etc. Hardcover, extensive index, highly recommended, \$9.95.

PHOTO ALBUM OF YESTERDAY'S SOUTHWEST compiled by Charles Shelton. Early days photo collection dating from 1860s to 1910 shows prospectors, miners, cowboys, desperados and ordinary people. 195 photos, hardcover, fine gift item, \$12.50.

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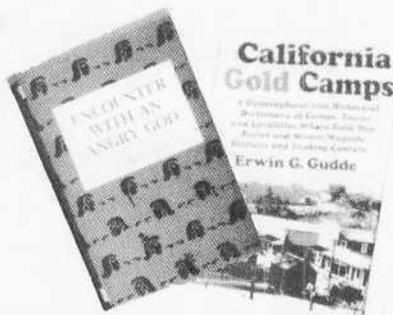
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MINES OF THE EASTERN SIERRA by Mary DeDecker. Here is the story of those mines located on the eastern slope of the great Sierra Nevada and in the arid stretches of California's Inyo Mountains. Included are stories of mystery mines such as the Lost Gunsight, over toward Death Valley, and of the Lost Cement Mine of the Mammoth Lake region. Paperback, illus., \$1.95.

RAY MANLEY'S SOUTHWESTERN INDIAN ARTS AND CRAFTS is a full color presentation of the culture of the Southwest including jewelry, pottery, baskets, rugs, kachinas, Indian art and sandpaintings. 225 color photographs, interesting descriptive text. Heavy paperback, 96 pages, \$7.95.

WILY WOMEN OF THE WEST by Grace Ernestine Ray. Such women of the West as Belle Starr, Cattle Kate and Lola Montez weren't all good and weren't all bad, but were fascinating and conflicting personalities, as researched by the author. Their lives of adventure were a vital part of the life of the Old West. Hardcover, illustrated, 155 pages, \$7.95.



CALIFORNIA GOLD CAMPS, a Geographical and Historical Dictionary of Camps, Towns and Localities Where Gold Was Found and Mined, and of Wayside Stations and Trading Centers, by Erwin G. Gudde. Includes 7 excellent maps, in addition to a List of Places by County, a Glossary and Bibliography. Highly recommended. Hardcover, 467 pages, \$19.50.

OUTDOOR SURVIVAL SKILLS by Larry Dean Olsen. This book had to be lived before it could be written. The author's mastery of primitive skills has made him confident that survival living need not be an ordeal once a person has learned to adjust. Chapters deal with building shelters, making fires, finding water, use of plants for food and medication. Buckram cover, well illustrated, 188 pages, revised edition boasts of 96 4-color photos added. \$5.95.

MEXICO'S WEST COAST BEACHES by Al and Mildred Fischer is an up-to-date guide covering the El Golfo de Santa Clara to the end of the highway at Manzanillo. Excellent reference for the out-of-the-way beaches, in addition to the popular resorts such as Mazatlan and Puerto Vallarta. Although traveling by motorhome, the Fischers also give suggestions for air, auto, ferry and train travel as well. Paperback, well illustrated, 138 pages, \$3.00.

NEVADA GHOST TOWNS AND MINING CAMPS by Stanley W. Paher. Covering all of Nevada's 17 counties, Paher has documented 575 mining camps, many of which have been erased from the earth. The book contains the greatest and most complete collection of historic photographs of Nevada ever published. This, coupled with his excellent writing and map, creates a book of lasting value. Large format, 700 photographs, hardcover, 492 pages, \$15.00.

BAJA CALIFORNIA GUIDEBOOK by Walt Wheelock and Howard E. Gulick, formerly Gerhard and Gulick's Lower California Guidebook. This totally revised fifth edition is up-to-the-minute for the Transpeninsular paved highway, with new detailed mileages and descriptive text. Corrections and additions are shown for the many side roads, ORV routes, trails and little-known byways to the desert, mountain, beach and bay recesses. Folding route maps are in color and newly revised for current accuracy. Indispensable reference guide, hardcover, \$10.50.



DEATH VALLEY GHOST TOWNS by Stanley Paher. Death Valley, today a National Monument, has in its environs the ghostly remains of many mines and mining towns. The author has also written of ghost towns in Nevada and Arizona and knows how to blend a brief outline of each of Death Valley's ghost towns with historic photos. For sheer drama, fact or fiction, it produces an enticing package for ghost town buffs. Paperback, illus., large format, \$2.95.

BUTCH CASSIDY, My Brother by Lula Parker Betenson. Official version of the authentic life story of Butch Cassidy, actually Robert Leroy Parker, famed outlaw of his native Utah and adjoining states, told by his surviving sister. The book also offers a new look at Utah Mormon History by a participant. Hardcover, many rare pictures, 265 pages, \$7.95.

GOLD DIGGERS ATLAS by Robert Neil Johnson. Maps covering the areas from California east to Texas and north to British Columbia show where gold has been found. Gives likely sites of "buried treasure tales" such as the Lost Breyfogle Ledge, Lost Adams Cave, Lost Arch Mine, Lost mule Shoe Gold, Lost Black Rock Silver and many more. Paperback, \$3.00.

CALIFORNIA YEARBOOK, Bicentennial Edition. Contains 25 separate chapters covering all aspects of the state. Comprehensive index of names, places, topics and events. 400 pages of accurate, up-to-date information and statistics. Large format, paperback, \$4.95.

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DESERT PLANTS FOR DESERT GARDENS by Patricia Moorten and Rex Nevine. Compiled for better understanding and appreciation of plants indigenous to the desert region, including proper design for desert gardens, container plants, pool areas and complete landscaping. Paperback, illustrated, 113 pages, \$3.00.

TIMBERLINE ANCIENTS with photos by David Muench and text by Darwin Lambert. Bristlecone pines are the oldest living trees on earth. Photographer David Muench brings them to life in all their fascinating forms, and Lambert's prose is like poetry. One of the most beautiful pictorials ever published. An ideal gift. Large format, hardcover, heavy slick paper, 128 four-color photographs, 125 pages, \$22.00.

HAPPY WANDERER TRIPS by Slim Barnard. Well-known TV stars, Henrietta and Slim Barnard have put together a selection of their trips throughout the West from their Happy Wanderer travel shows. Books have excellent maps, history, cost of lodging, meals, etc. Perfect for families planning weekends. Both books are large format, heavy paperback, 150 pages each and \$2.95 each. Volume One covers California and Volume Two Arizona, Nevada and Mexico. WHEN ORDERING STATE WHICH VOLUME.



MINES OF JULIAN by Helen Ellsberg. Facts and lore of the bygone mining days when Julian, in Southern California, is reported to have produced some seven million dollars of bullion. Paperback, well illustrated, \$1.95.

MINES OF THE HIGH DESERT by Ronald Dean Miller. Author Miller knew both the countryside of the High Desert and the men who were responsible for the development of the Mines of the High Desert. Here are stories of the Dale District never told before, with many early as well as contemporary photographs of the early mines included. Paperback, \$1.95.

INSIDE DEATH VALLEY by Chuck Gebhardt. A guide and reference text of forever mysterious Death Valley, containing over 80 photographs, many in color. Included, too, are Entry Guides and Place Name Index for the convenience of visitors. Written with authority by an avid hiker, backpacker and rockclimber. 160 pages, paperback, \$4.95.

LOST MINES OF THE GREAT SOUTHWEST by John D. Mitchell. The first of Mitchell's lost mine books is now available after having been out-of-print for years. Reproduced from the original copy and containing 54 articles based on accounts from people Mitchell interviewed. He spent his entire adult life investigating reports and legends of lost mines and treasures of the Southwest. Hardcover, illustrated, 175 pages, \$7.50.

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Books for Desert Readers



JESSE JAMES
 WAS ONE OF HIS NAMES

By *Del Schrader*
 [With *Jesse James III*]

All books reviewed are available through the *Desert Magazine Book Shop*. Please add 25c per order for handling and California residents must include 6% state sales tax.

Was Jesse Woodson James, born in Kentucky in 1844, killed by ex-jockey Bob Ford at St. Joseph, Missouri, in 1882, or did he die of old age at 107 years in 1951 at Granbury, Texas?

In this book, *Jesse James Was One of His Names*, *Jesse III* claims that his ancestor had an underground army and not a gang, and the St. Jo "murder" was a hoax to "get the people's minds off Jesse James so he could go ahead making plans for Civil War II, which never came." The St. Jo incident is termed the greatest cover-up in U.S. history.

The book relates that a bloodthirsty bandit named Charlie Bigelow lies buried in Jesse's grave in Kearney, Mo. What did happen on April 3, 1881? The authors say Jesse himself gunned down Charlie, while Jesse's big Negro accomplice, John Trammell, killed Bert and John, the other two Bigelow brothers. In a bit of bravura, Jesse was a pallbearer at his own funeral, and afterward sang in the choir and heard the Rev. J. M. Martin eulogize the 38-year-old outlaw as a homespun Robin Hood.

The authors, newsman *Del Schrader* and *Jesse James III*, claim that James used a total of 72 aliases during his 66 years of exile in his own land.

MEMOIRS OF AN OREGON MOONSHINER

Ray Nelson

The end of World War I marked the beginning of America's struggle between the wets and the dries. The Volstead Act made it illegal to drink but did little to quench the nation's thirst. The era was one of the zaniest in civilized history.

There had to be sources of supply, and most of the liquor was manufactured illegally within our own borders. The moonshiner and his still hidden in the backwoods, became an important part of the nation's economy for more than a dozen years.

Ray Nelson and his partners distilled thousands of gallons in the isolated rimrocks of the Eastern Oregon desert. He took pride in his work and turned out good whiskey. His book tells exactly how this fascinating and illicit business was carried out.

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BOOKS



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Does the book whitewash Jesse James?

Not at all. He was one of the deadliest men ever to walk the earth, and by his own estimate killed 2000 men and 13 women in his 107 years. The reader should remember that Jesse was a full colonel in the Confederate army at the age of 20, and most of his killings took place during the Civil War.

The book on America's most colorful outlaw for the first time pinpoints the fact there were two sets of Frank Jameses and two sets of Jesse Jameses. Through decades of mischief, the two sets of cousins formed more or less a composite which was never understood by lawmen and never investigated by historians.

Jesse James Was One of His Names (taken from a verse in Billy Gashade's song) for the first time brings to light information on the Knights of the Golden Circle, a secret Confederate spy organization which existed from 1856 until the books were closed in 1916.

It was Col. Jesse James and Col. William C. Quantrill (really Elbert DeWitt Travis, a younger brother of William Barret Travis, who was in command of the Alamo when it fell) who buried more than \$100 billion in treasure in Confederate depositories around the nation after the Civil War.

Also, the book discloses that Jesse James shot his old enemy, Wild Bill Hickock, in a bar at Deadwood City in 1876. And Jesse's hands, who were running guns to Sitting Bull, claim in yellowed affidavits that Gen. George Custer killed himself at Little Big Horn.

The book also tears apart other myths. For instance, Emperor Maximilian of Mexico survived an ambush in Mexico in 1867, escaped to East Texas and died in the United States.

Jesse James, nearly blind from cataracts and crippled by a broken hip, emerged from the shadows at Lawton, Oklahoma in May of 1948. Following a couple of giant parades, the alert, blue-eyed old man was taken on a national tour. Christmas, 1948, found him in his Van Nuys, California home.

Jesse James Was One of His Names was based on information supplied by Jesse James III, executor of his grandfather's will.

Hardcover, illustrated with old photos, 296 pages, index, \$8.95.



HISTORICAL ATLAS OF NEW MEXICO
by Warren A. Beck
and Ynez D. Haase

New Mexico's long and dramatic history was in many ways predestined by its location, vast size and abundant mineral resources.

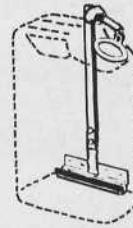
Treasure-hunting Spanish explorers trampled across its plains and scaled its mountains in search of the Seven Cities of Cibola in the 16th Century. They clashed with descendants of the prehistoric Indian population to begin three centuries of struggles that lasted until after the white man's civilization came, in the 19th Century, on the steamroller of U.S. expansion. The history of New Mexico is the story of the blending of the three cultures—Hispanic, Indian and Anglo.

In this volume, historian Warren A. Beck and cartographer Ynez D. Haase have collaborated to depict specific aspects of the state's geography and events of its history, the narrative illustrated by maps. Topics include geographical data (from topography to weather), sites of prehistoric civilizations, Spanish and U.S. expeditions, first towns, historic trails, the Civil War, stagecoach lines, railroads, county boundaries, principal cities and roads, state and national parks and monuments, and state judicial districts. Maps appear on pages opposite the topics they illustrate.

As in their other publication, *Historical Atlas of California*, extensive documentation and pertinent detail make this atlas a valuable aid to historians. Its fluent style and simplicity of language make it an excellent reference book for high schools, colleges and libraries and is certainly an asset to anyone's library who is interested in the development of the Southwest.

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TOMBSTONE'S

THE OLD DAYS OF THE WILD WEST ARE BROUGHT TO LIFE BY A THEATRICAL GROUP THAT ARE APPLY CALLED "THE WILD BUNCH"

by DEKE LOWE

HIRTY SECONDS—that afternoon of October 26, 1881—snuffed out the lives of three men and immortalized four others and also a town—Tombstone, Arizona.

Thirty seconds of incredibly quick accurate gunplay left Frank and Tom McLaury and 19-year-old Billy Clanton dead or dying in the dust of the O.K. Corral. Ike Clanton and Billy Claiborne ran to die another day. Morgan and Virgil Earp and Doc Holiday received wounds but Wyatt Earp alone was untouched.

Who were the bad guys and who wore the white hats? There are as many answers as there are writers and historians.

This classic gunfight did for Tombstone what Ed Schieffelin's fabulous silver strike could not do. It created an interest in the Old West and Tombstone that has sustained the town for decades after the mines closed down.

Thousands of tourists annually stroll historic Fremont, Allen and Toughnut Streets and find them much as they were in the 1880s. Old familiar names such as The Wagon Wheel, Birdcage, O.K. Corral, Oriental and others are still there doing a thriving business.

Outside the town are the Lucky Cuss, Toughnut, Contention and Goodenough mines and many more. Long dormant and flooded, they still contain unmined amounts of silver ore waiting, as Tonopah and Virginia City wait, for the right conditions that will warrant their reopening.

If it seems a little quiet in Tombstone, there is great news. Wyatt Earp and brothers Morgan and Virgil are back! So are the Clantons, McLaury and Johnny Ringo. To make it even more intriguing, the girls are back! Dutch Annie, Crazy Horse Lil, Red Marie, Madam Chloe Le Deau and the Over-The-Hill Dancehall Girl bustle about town in appropriate dress.

These characters and more, 25 in all, make up the Wild Bunch.

The Wild Bunch was born in 1972. The cast is composed of local citizens. Its immediate success was due in part to their costumes. Authentic 1880 period replicas of cowboy, gambler, gunfighter, dancehall girls, and madams are worn by all. A greater part of their success is their extraordinary theatrical abilities.

This group reenacts the world's most famous gunfight—that 30-second bloodbath at the O.K. Corral.

Inside the O.K. Corral, on show day, visitors see them in action depicting history of early Tombstone. Violent, sad or comic skits are done with a flair and showmanship of professional quality. With little dialogue and lots of action, there are no dead spots.

Prior to each performance a resume of the act is read. From that point, the actor portrays the part in his own way. This free-form style avoids mechanical repetition. However, the people involved in fight scenes are well trained before they are given any part of the action. Women of the Wild Bunch participate equally in

fight scenes with the men. There's a rumor about town that Crazy Horse Lil and Red Marie really mean it when they clobber a dude in a scene. It looks too real to be acting.

In their brief history, the Wild Bunch has performed over 80 times in Tombstone and 40 or more times out of town, out of state and in Old Mexico. In addition to making a television show for "You Asked for It!" they were used exclusively in "Deacon, the High Noon Dog," and published a book entitled "That Wild Bunch in Tombstone."

They have conducted more than 12



The Wild Bunch brawls in the street in one of their numerous skits.

WILD BUNCH

hangings. Hangings cannot be bought from the Wild Bunch. This dubious honor is bestowed. They, and only they, decide who is worthy of climbing the golden stairs via the hangman's noose. They have hanged the Secretary of the Army, two generals, one mine president, one plant manager, two mayors, the president of Historic Tombstone Adventures, one governor, one senator and the head of the Arizona State Police.

Their evil plotting has scheduled, very soon, a holdup of the Bi-Centennial Freedom Train on its way through Arizona. Not once, but twice!

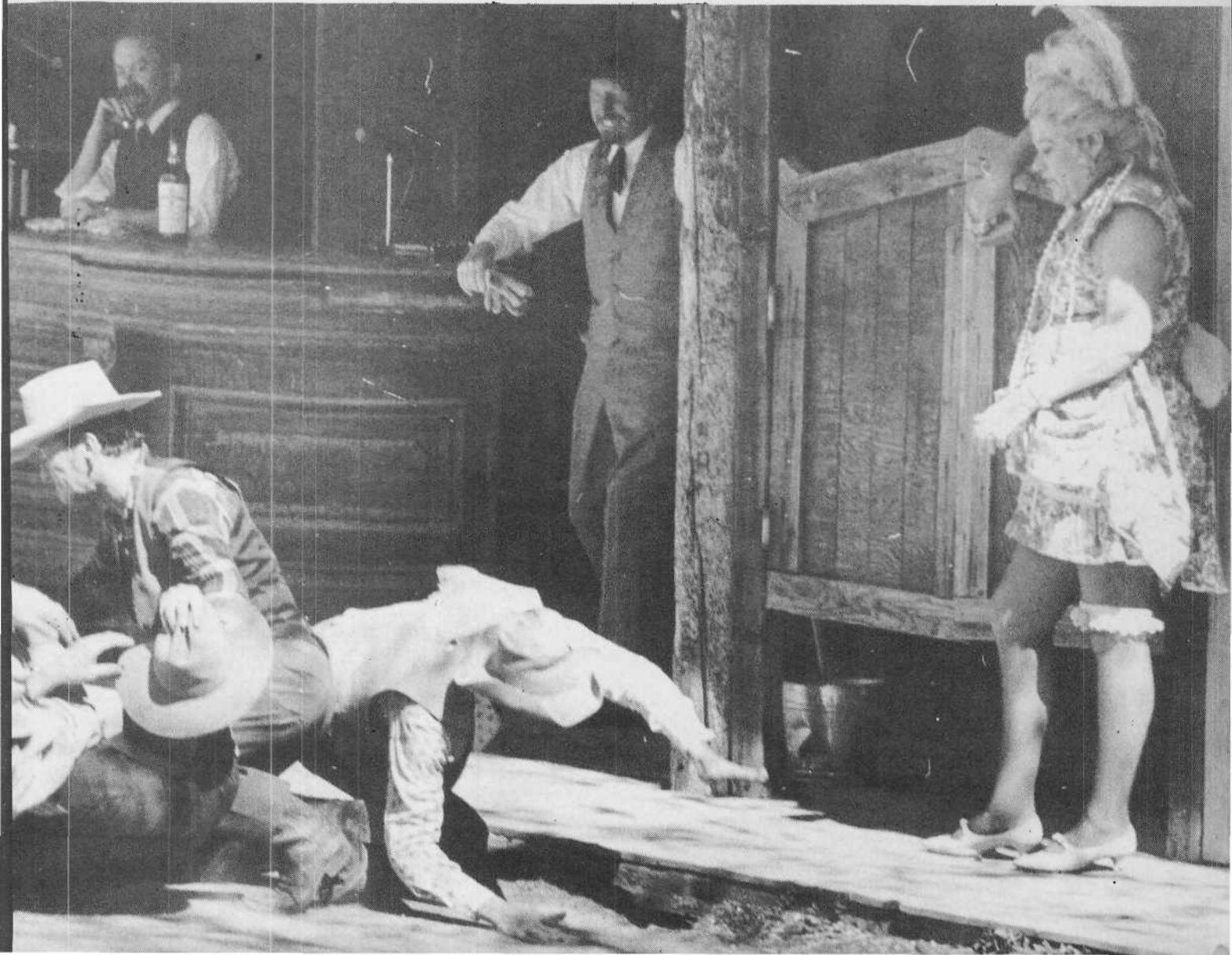
They have posed for, and were immortalized in oil, by artist Tony Russell in "Thirty Seconds with the Wild Bunch."

Other credits are performances on "Gunsmoke" by Norman Wright Productions; "The Wild and Woolly West" by British Broadcasting Company, and many other productions.

They have won an impressive array of trophies including four first places. Two of the latter were with a float depicting the famous Madam Chloe LeDeau's "Establishment" complete with soiled doves and customers.

If the Wild Bunch sounds bawdy, rowdy and somewhat evil, then rest assured that this will make them happy. The actors and actresses boast that they present the most unusual show anywhere and then proceed to prove it. People return time after time because they can't believe the Wild Bunch. The highlight of their visit to Tombstone is the realistic performances of this troupe.

These dedicated evil-doers can't be all bad, though. All money made by the Wild Bunch, except for a few props and blank ammunition, is given away. Each member pays for his own transportation,



food and lodging on out-of-town trips. Each is also required to provide, at their own expense, his or her costumes and weapons.

They have donated thousands of dollars to the Chamber of Commerce, Christmas Baskets, medical bills, flowers to the ill or deceased; paid for digging graves and buying tombstones;

helped to build a tennis court and donated to the Junior Rodeo Association and many other worthy causes.

Now these actions, if not stopped, are going to destroy a well deserved evil image so I shall refrain from mentioning any more.

As a matter of fact, I can't vouch for the above information because it was

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This photo is the Crystal Skull from prehistoric Mexico and is only one of the features in this magazine about world-wide archeology. Popular Archaeology, edited by professional archeologists, presents the "Mystery and Excitement of the Search and Excavation" in easy-to-read and well illustrated issues about the history of our civilization; such as, pueblo ruins of the Southwest, Spanish forts, finding of the Monitor, opportunities for amateur field work and current events in American archeology.

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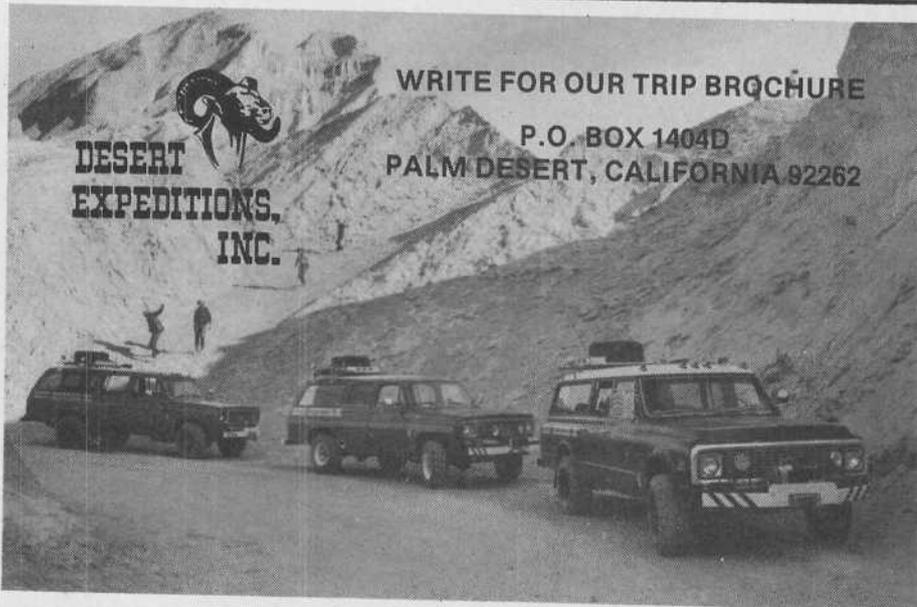
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Right: Old Tombstone after the disastrous fire in 1881.

Below: A prospecting team prepares to leave Tombstone in the 1880s.

C. S. Fly photo.



furnished by a character named Evil Ben. Evil Ben is married to Red Marie and plays Wyatt Earp in the Wild Bunch. In everyday life, Evil Ben is none other than Ben T. Traywick, author of many western books and articles, who lives in

STONE
Y AND
STABLE



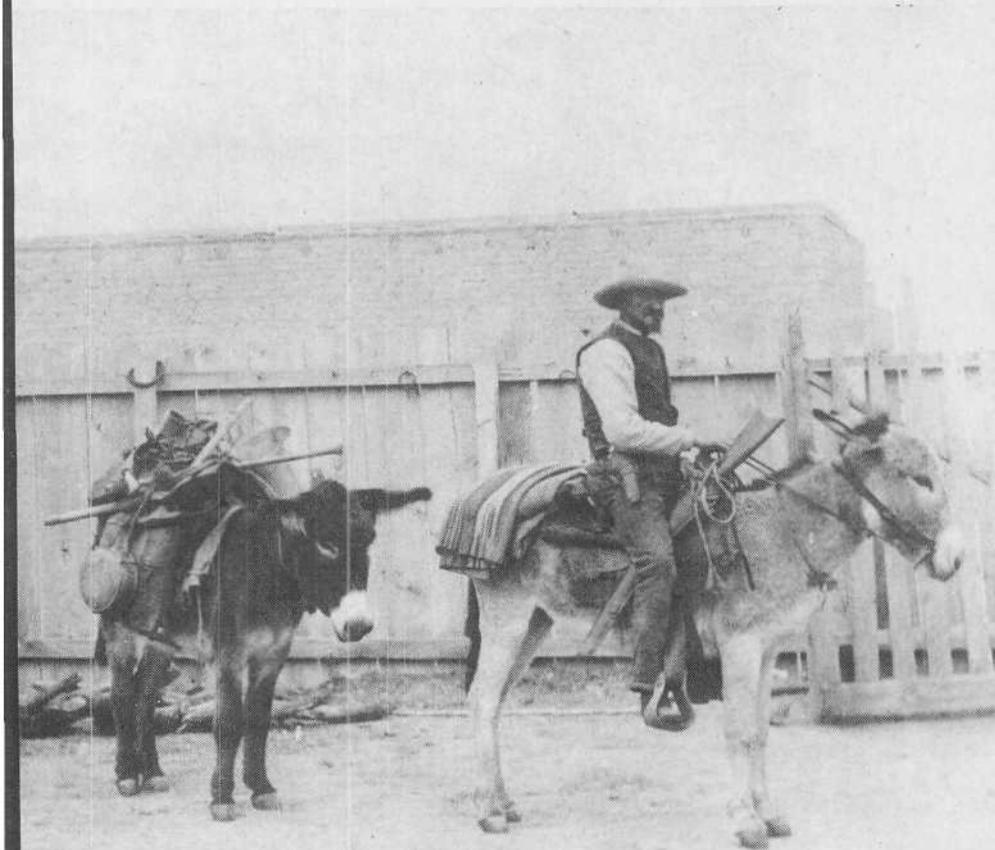


Tombstone nowadays.

Tombstone has no particular tourist season because its 4500-foot altitude assures good weather both summer and winter. There is a fantastic amount of authentic memorabilia of the Old West.

It is a mecca for the author and photographer as well as the vacationer.

Truly no trip to the Southwest is complete without a visit to Tombstone, the Wild Bunch and the most unusual show on earth in the historic O.K. Corral. □



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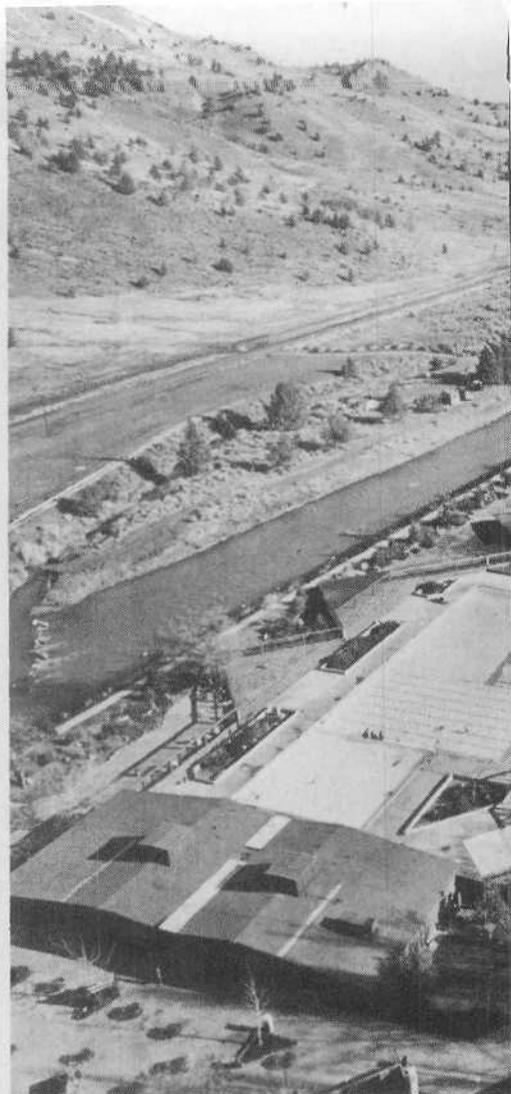
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INDIAN COUNTRY... OREGON'S NEWEST VACATION FACILITY

by VIVIAN VAN VICK



FOR YEARS, Oregon's spectacular coast has been its leading summer-tourist attraction. Now, an inland resort is competing strongly for visitors by offering attractive vacation facilities the year around. This is Indian Country.

Just 570 miles north of San Francisco, and 10 miles from the village of Warm Springs in north-central Oregon, is the Kah-Nee-Ta vacation complex, "Gift of the Gods." It is located on the eastern slope of the Cascade Mountains, at 1,800 feet. Here, the dry, desert-like climate claims 340 days of sunshine a year — a winter paradise for rain-soaked, fog-weary Pacific Coast residents. Its accommodations and recreational facilities have been planned to suit every purse and every interest, from inexpensive tepee or trailer park to luxury lodge and convention center.

What distinguishes Kah-Nee-Ta from the Pacific states' other resorts, motels, and campgrounds, is that it is totally owned and operated by Indians. In 1938, the Confederated Tribes of the Warm Springs Reservation (a blend of Wasco, Warm Springs and Paiute Indians) voted to take over self-management, rather than remain under the Bureau of Indian Affairs. The \$5.1 million Kah-Nee-Ta complex is the result—a highly successful example of Indian self-determination. Money for the project came from a grant and matching loan from the Economic Development Administration plus tribal funds.

The enterprise began with the Village, offering tepees, cottages and trailer hook-ups. Each towering tepee can accommodate 10 persons and is ideal for family camping. The cottages are modern with one or two bedrooms, bath, living and dining rooms, and some have kitchens. For those who don't want to cook outdoors or inside, there's a family-style restaurant and snack bar. Other popular places are the native crafts shop and the mineral baths.

The Village uses the natural hot springs for its swimming pool. Six life guards are on daily duty due to the large crowds enjoying the warm mineral waters.

The colorful pageantry of Indian festivals attracts vacationers at various times of the year. In April, the important Root Feast is celebrated; in mid-June it's the "good-time" festival called Pi-Ume-Sha, which, like the Fourth of July celebration, features rodeos, Indian dancing and crafts, and their renowned salmon-bakes.

There is plenty to occupy the village visitor at other times: a nine-hole golf course (with a nine-hole addition planned for this year), miniature golf, two tennis courts, hiking on trails that lead through strange rock formations, colored canyons and into exciting caves, horse-back riding, and fishing.

The Warm Springs River runs along the Kah-Nee-Ta complex and is regularly planted with trout to insure success

to even the amateurs. Many other rivers and lakes on this 564,209-acre reservation provide additional fishing, boating and camping.

The fisherman here must have two licenses — that from the State of Oregon and also a tribal fishing permit. For crawfish, however, you will need a special permit from the Fish and Wildlife Committee of the Warm Springs Reservation.

A mile downstream from the village is the posh Lodge and Convention Center. Shaped like an arrowhead, the Lodge is built on three levels with private patios overlooking the valley. Rates for double rooms in the past summer season (March 15-October 1) were \$27-\$30. There is no charge for children 11 years old or younger when in the same room. Included among their 144 rooms are suites for \$40-\$50, and a Chief suite for the luxury-minded consisting of three deluxe rooms, two baths, and a kitchen for \$90. There are two restaurants. The Juniper room not only serves the popular steak, prime rib and trout dinners, but traditionally prepared Indian dishes such



*Left:
Aerial
view of
Kah-Nee-Ta
Village
on the
Warm Springs
River. Natural
hot springs
mineral water
supplies
the huge
swimming pool
at lower
left.
Great Tepees
are at
center right.*

*Below:
Aerial view of
Kah-Nee-Ta Lodge
showing
private patios
and enclosed
swimming pool.*



as venison and juicy game hen baked in clay.

The banquet and meeting rooms for conventions are well-equipped with all types of audio-visual machines. There is a private theater and closed circuit television to make the Lodge a self-contained entertainment and convention center.

Its new 18-hole golf course stretches along the river; and, for skiers, all-day winter ski trips to Oregon's easy slopes are just an hour away. Equipment can be obtained at the Lodge.

Large numbers of persons who regularly frequent California's health spas are now enjoying Kah-Nee-Ta's warm mineral springs. A shuttle bus runs between the village and the lodge for those who want to join in the activities and recreation facilities of both places.

How to get there? From California, there are two routes. Take Interstate 5 to Eugene, turn east on Highway 126 to Redmond, then take Highways 97 and 26 to Kah-Nee-Ta. Figure on eight or nine hours from the border. An alternate route is Highway 97 out of Klamath

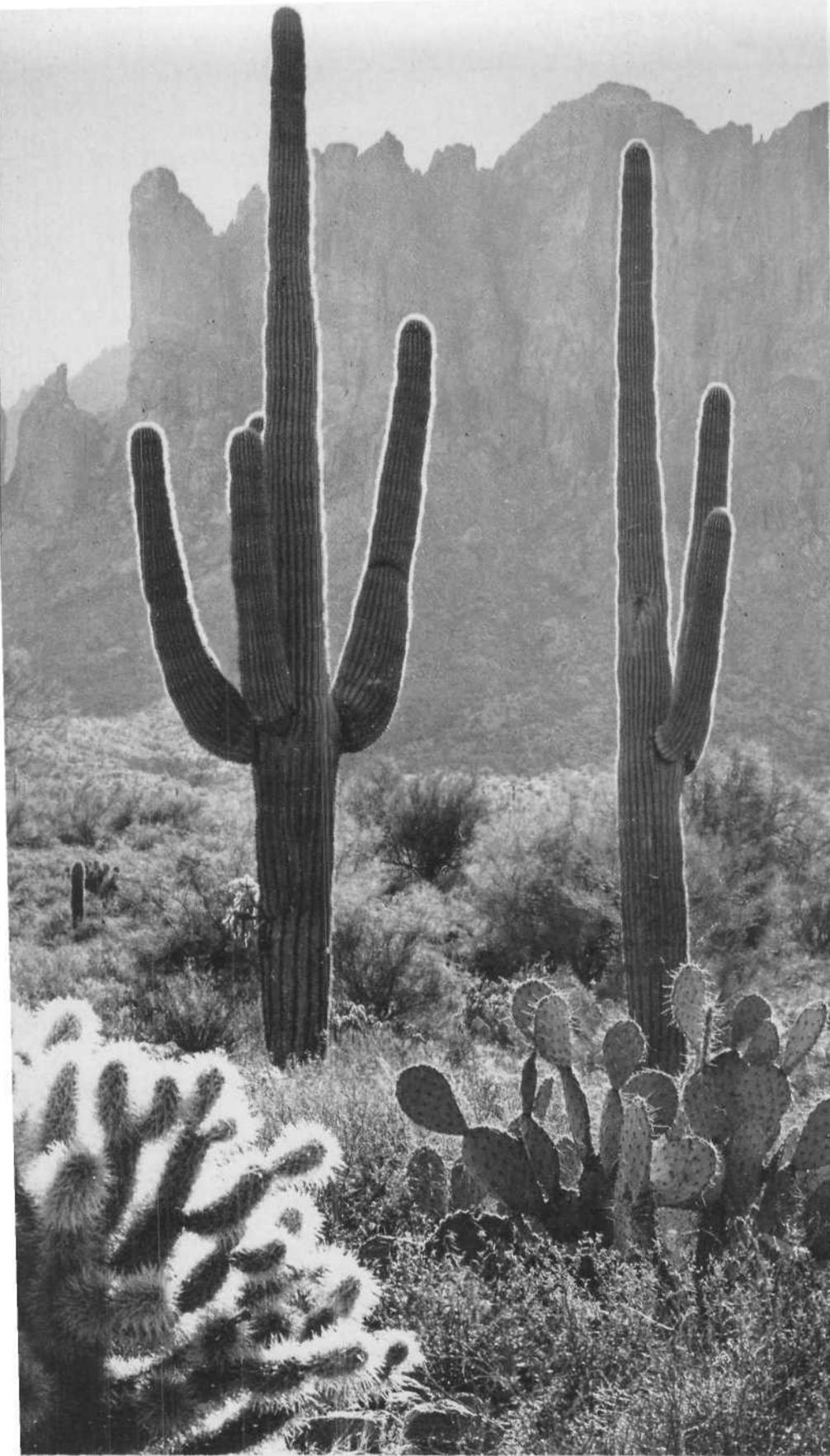
Falls, through Bend to Highway 26 at Madras, then on to Kah-Nee-Ta. It's about six hours from Klamath Falls.

Here is a good opportunity for people to get exposure to the culture of one of the great racial systems of mankind. The American Indian has a definite contribution to make to this country's thinking.

Joseph Stacey, recently retired editor of the *Arizona Highways Magazine*, says, "The more we know and understand about Indianism, the more we believe that the longevity and welfare of our civilization may depend upon the infusion of Indian culture into our social, moral and spiritual arteries. We must employ all means possible to preserve the Indian's desire for spiritual and sensual sustenance to balance our civilization's drive for inanimate inventiveness and a growing mania for material things."

Indians are in transition, moving determinedly toward self-government in programs that will enhance their lives. They are currently the most disadvantaged of the minority ethnic groups in the United States.

We can have a different vacation anytime of the year at Kah-Nee-Ta, and at the same time get to know our Pacific Coast Indians. □



SPECTACULAR in their great height, with massive trunk and reaching upward arm structure, the mighty saguaros dominate their desert landscape. Standing sometimes almost alone, sometimes like phalanxes of soldiers, they are the largest of all native North American cacti. Individuals among them may be close to 50 feet in height, weigh around 2,800 pounds, and reach the venerable age of 175 years.

Undeniably, the mere presence of these bizarre giants adds to the mystery and lure of that enchanted land known as the Sonoran Desert. But more than this. Theirs is a very important role in the drama of life about them — a drama taking place under such harsh conditions that the survival of all living things, great and small, hangs in delicate balance. Yet, not only are the saguaros successful themselves in this land of high heat and little water, they also furnish life-saving food, water and home sites for a host of birds, animals and insects. And these in turn play their parts in the vast desert drama; indeed, certain ones are responsible conversely for the success of the saguaros themselves.

The huge size of these giant cacti is in itself astonishing. Water being so vital to plant life and growth, how can such large organisms survive under desert conditions? Saguaros, it seems, upon investigation, have developed a whole series of adaptations in form and in physiological function, all designed to further the absorption, storage and conservation of water.

Take their structure, for instance. In essence a saguaro is a woody skeleton surrounded by large volumes of tissues designed for water storage. Its outside rind, all folded and pleated, is highly expandable. As the plant swells with the incoming moisture, the folds smooth out, increasing the surface and allowing vast quantities of water to be stored inside. Such an expandable form allows the cactus to store water during the rainy season and use it to tide it over long periods of drouth.

Loading the water aboard is a function

Photo by Fred H. Ragsdale

WORLD OF THE

of the roots, naturally performed under difficulty in desert conditions. Botanist W.A. Cannon's important study showed that the saguaro's combination of superficial and deep roots works exceedingly well. The superficial ones are long with many branches and lie close to the surface. They quickly take up any water reaching them, thus making use of lighter showers. The deeper roots penetrate further down securing moisture there, and providing the tall plant with a more secure anchorage. Such a root combination works best on a rocky hillside where the soil is coarse and fairly deep for easy root extension. It does not work well in a mesa type area where the soil is shallow and underlaid by a hardpan which the deeper roots cannot penetrate.

How much water does a saguaro need to tank up? Cannon came up with the figure that two years of rainfall (11.4 inches approximately normal for the area of his study) would be needed to supply a cactus 15 feet tall with the water it normally contains. So far, so good. But now how does the cactus conserve this vital water in the face of an annual evaporation figure for a desert which even in favorable times is at least seven times the rainfall?

As a matter of fact, evaporation is a problem to a plant anywhere, since a certain amount takes place in the normal process of maintenance and growth, and it cannot be avoided. Evaporation takes place through small holes called stomata, located in most plants on the under surface of the leaf. They open and close by action of guard cells, triggered by the amount of water in the plant. But things get still more complicated, since besides acting in the water balance system, the stomata also function in the workings of the plant's food manufacturing department. It is through them that the carbon dioxide enters which the plant needs to use with water, green chlorophyll and certain minerals to make organic food for itself. Light is essential to this process of photosynthesis so that the job must be done by day. Unfortunately, if the stomata are open daytimes to take up carbon dioxide, water vapor is bound to go

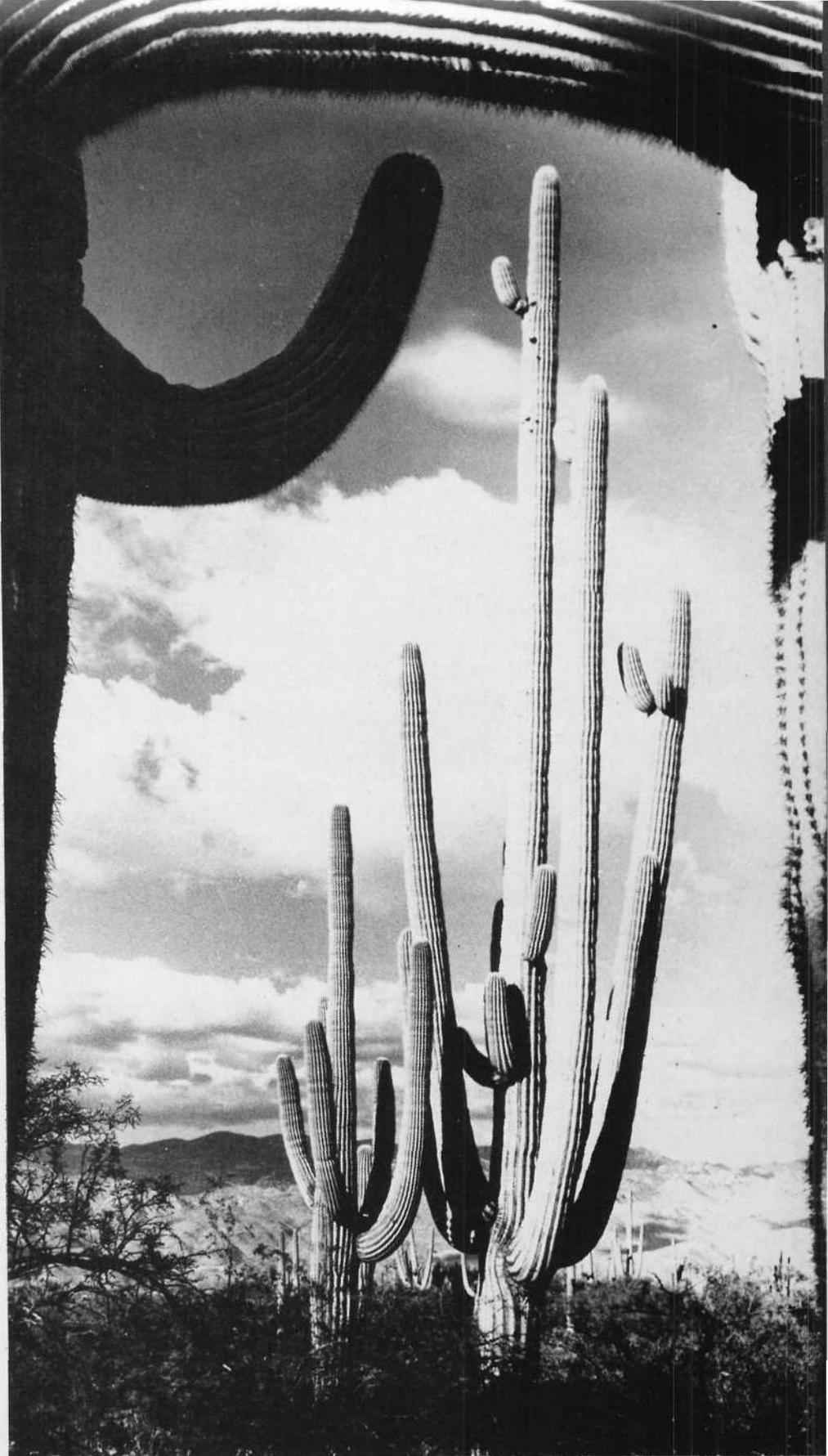


Photo by George Olin

SAGUAROS

by K. L. BOYNTON

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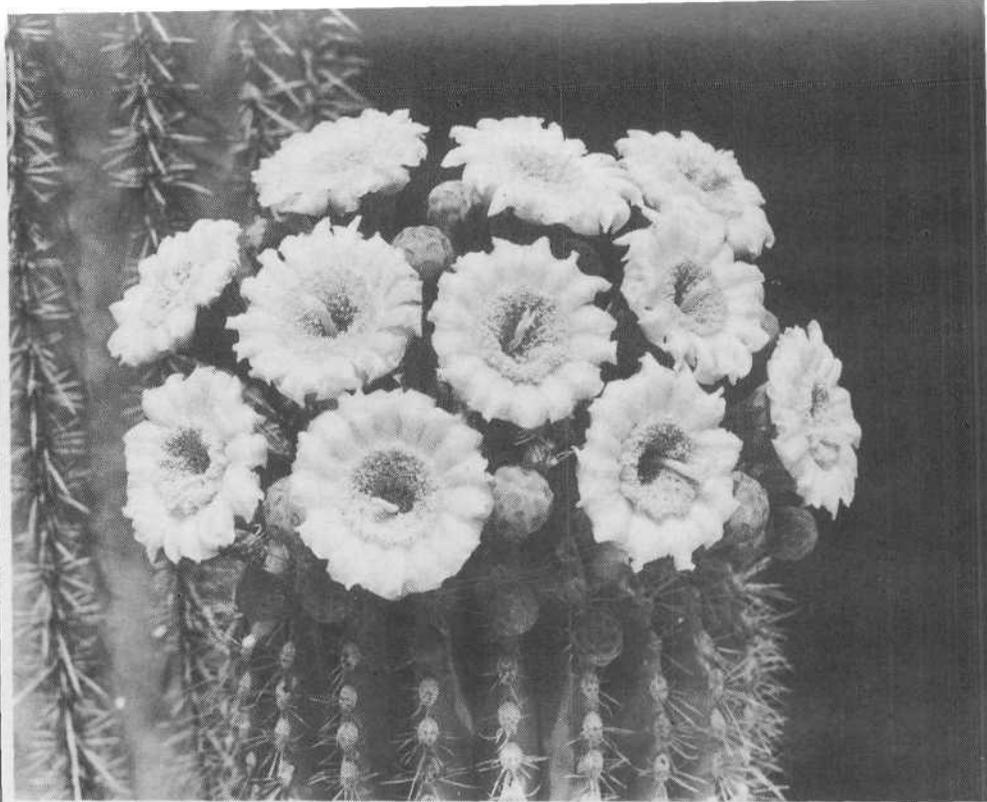
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The saguaro blossoms have a sweet smell and lots of nectar. Photo by Ethel Capps.

out at the same time, and if the air temperature is high and there is a hot wind in addition, the evaporation rate is extremely fast. The plant begins to wilt badly, and the stomata close to conserve water in spite of the fact that food is needed and they should stay open.

True, cacti as a group have adapted remarkably to desert evaporation conditions. They eliminated leaves whose thin structure makes water control difficult and transferred their food making site to their stems and trunks, which have been greatly increased in size. And, of course, they developed the all important water storage tissue.

But even these structural changes were not enough to meet the evaporation challenge so successfully, the team of D.G. Despain, L.C. Bliss and J.S. Boyer felt. There must be, they argued, some physiological system that cuts water loss in these big cacti further, and they devised lab and field tests to find out. To their delight they discovered that the saguaro reverses the usual plant deal: instead of taking up carbon dioxide during the desert day and thus having trouble with too high water loss, the stomata in the saguaros open for carbon dioxide intake during the cooler hours of darkness. It is then stored, probably in the water holding tissues, and released little by little during the day to be used in food manufacture in the presence of sunlight. This reversal in time of stomata

opening results in a great conservation of moisture, and with the water storage system, is why such large succulents as saguaros can occur successfully in so hot a desert as the Sonora.

Still, the life of the saguaro is no cinch, as the following account will show.

The saguaro saga begins in the merry month of May when the big cacti, bedecking themselves in large white flowers, open their nectar and pollen restaurants. Now as everybody knows, flowering plants are great hands to do this, particularly those such as the saguaro whose blossoms are self-sterile and must be cross-pollinated if fruit is to set and seeds form. Not designed for riding the wind, saguaro pollen has to be transported from one flower to another. This means that living cargo carriers have to be conned somehow into doing the job. If they can just be enticed to the first flower, they're bound to brush against its pollen, dropping it off in the next flower they visit. Showy blossoms, a sweet smell and plenty of nectar brings customers and the plant gets its pollinating job done.

Only a few saguaro blossoms are ready at a time. They open one by one at night, until around 11 p.m. all that will bloom that night are open. They remain open, closing finally in the late afternoon. Pollination thus can occur both night and day, and the team of biologists S.E. McGregor, Stanley Alcorn and

George Olin set out to see who does it and how it is done. They enclosed blooming plants in screen wire cages and then introduced potential pollinators, one kind at a time, tabulating the results of their efforts in terms of successful fruit setting.

Honey bees, chosen to represent insect contestants, were first. Working bee style they crawled deep into the flowers. The average bee load of nectar was 40 milligrams, and while they were busy tanking up and stowing pollen in their leg baskets to be carried back to the hive, a lot of pollen adhered to their britches, falling off in the next flower they visited. Efficiency score for the bees: fruit set in 52 percent of the plants they visited. While domestic honey bees are relatively new to the Southwest and thus could not account for the very old and venerable saguaros, wild bees were around plus other insects, so pollination from this contingent has undoubtedly gone on for a long time.

White winged doves were next given a chance to show what birds can do and it was quite apparent from the way their heads disappeared into the blossoms for at least 10 seconds, that they were guzzling nectar. The reappearing heads were dusted with pollen. One dove visited two dozen flowers from different plants. Efficiency score for the doves: 45 percent. McGregor et al picked the white wings mainly because they are the most prevalent day flying bird around these parts during the saguaro flowering period. But others — the thrasher, cactus wren, gilded flicker and Gila woodpecker also feed on the cacti and hence do their share of pollinating.

What about nighttime workers? Moths, of course. The biologists eyeing bats as another possibility elected a long nosed number which, wintering in Mexico, arrives in Arizona on schedule just when the saguaros are blooming. These bats are fruit and nectar eaters, being equipped with long tongues good for slurping. Furry heads were thrust into the flowers as the bats crawled about on them, and the faces that emerged wore pollen powder. Bat score for fruit set: 62 percent.

All these scores may seem low, but even the careful hand pollinating job the biologists did came out only about 71 percent. On uncaged plants in the field the score was only 54 percent. Still,

McGregor & Co. figured that 15-20 mature plants per acre, each with four flowers a day for a 30-day blooming period, should put out some two million viable seeds. Taking into consideration the potential life span of about 175 years, just one plant from all these establishing itself each year would maintain the population. The failure of saguaros to repopulate in certain areas today is not due to lack of viable seed production.

The seed-loaded fruit ripens in June and July — red and juicy — welcome food in this heat-ridden land. Winged customers arrive: white winged doves, western mourners, curved bill thrashers, cactus wrens, Gila woodpeckers, gilded flickers, dining on the fruit while still on the plant. As it falls to the

Continued on Page 46



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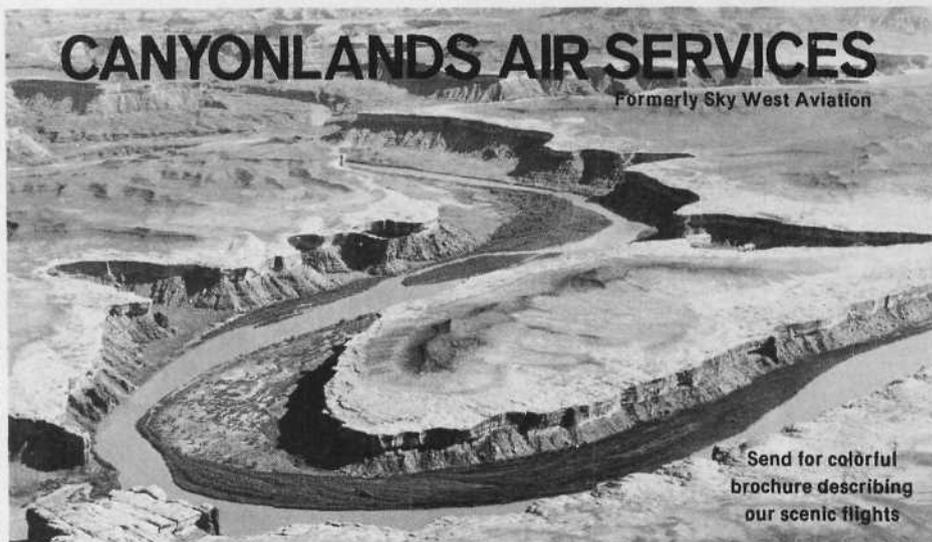
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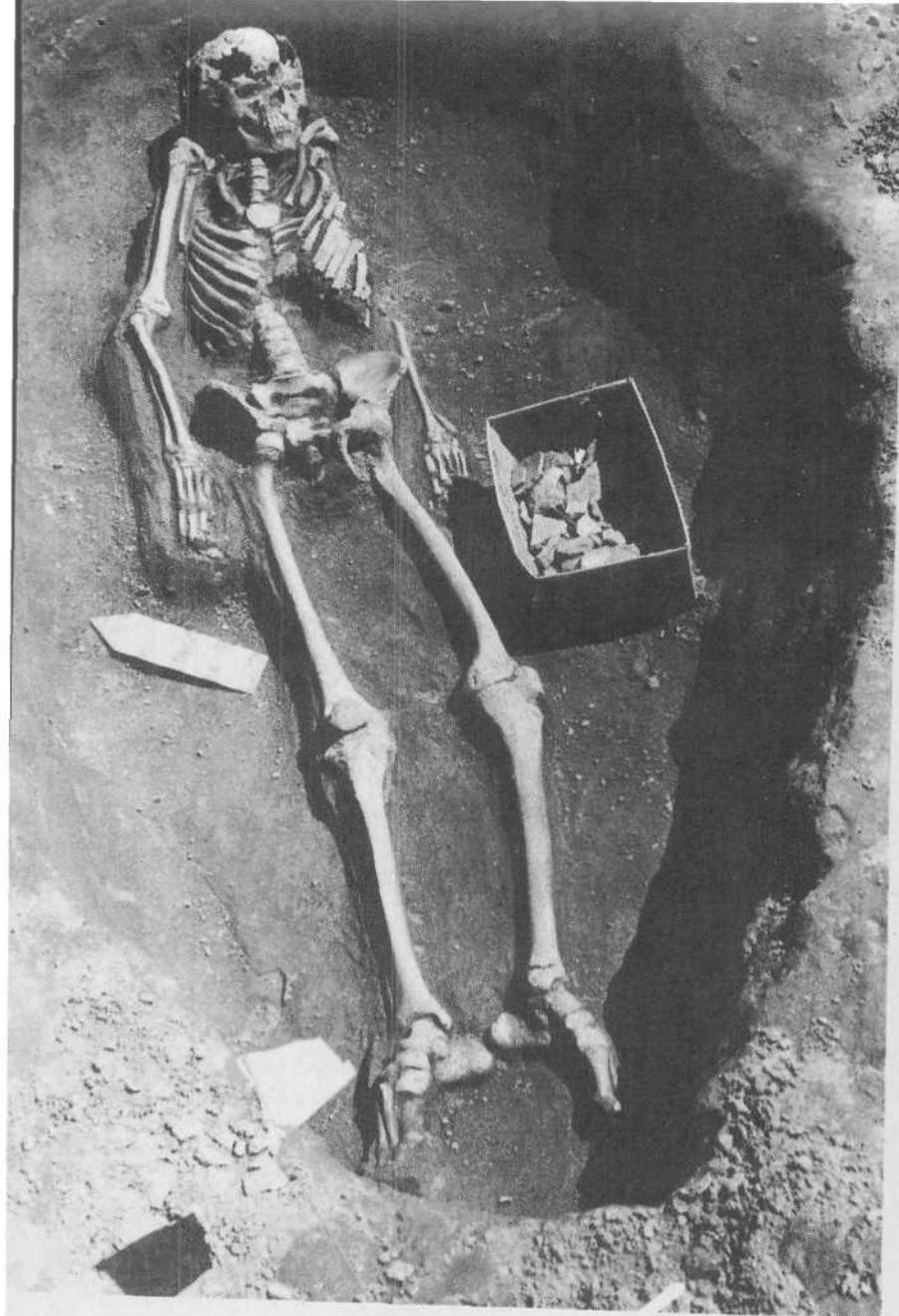
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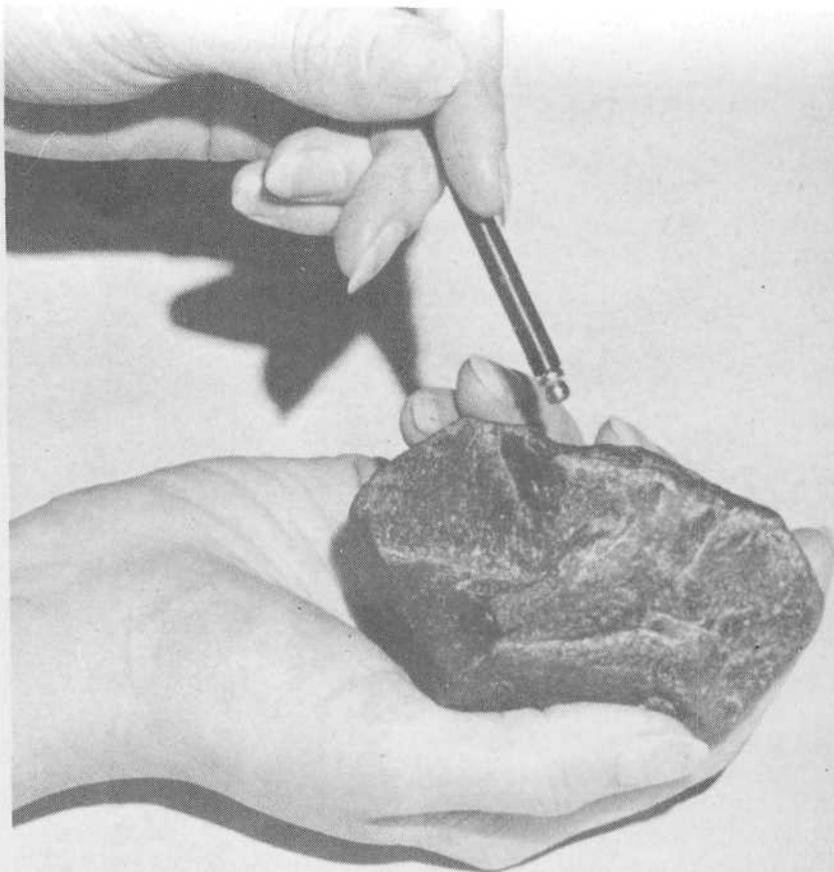
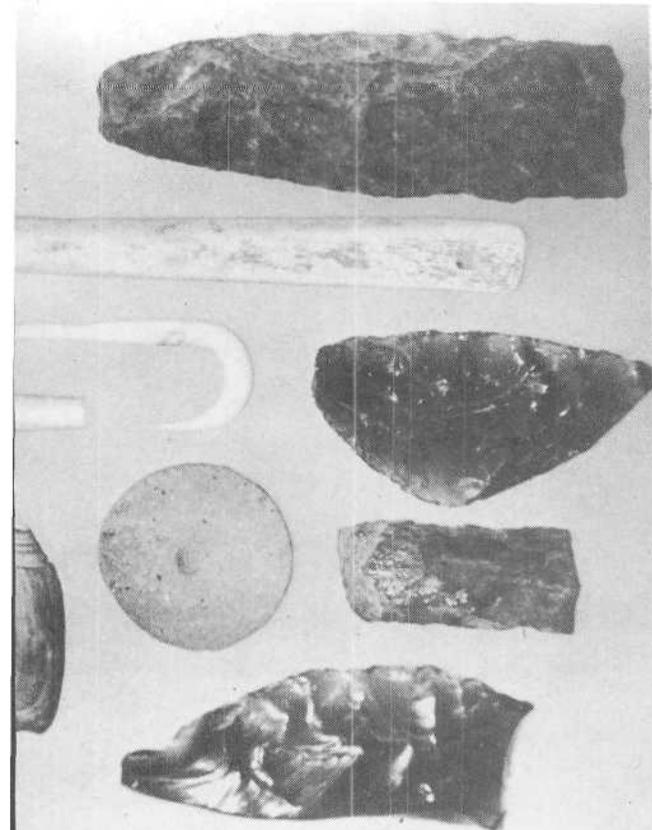
Left: Excavated burial, dating from the Woodland Period [ca. 1200 A.D.]. Above: Sample of prehistoric artifacts—obsidian knives [California], slate chisels [Pennsylvania], projectile points and clay disc [California], conch shell bead [Maryland], pipe [Tennessee], large needle, bone breast plate ornament, and bone fish hook [Plains]. Above right: Stone chopper from the Southwest. Dates to the Desert Tradition [ca. 5000 B.C.]. This specimen shows wear along the cutting edge.

What is American Archeology?

PART I

ALTHOUGH THE science of archeology is a relatively new discipline, the observation and study of people has been going on for many centuries. Interest in these studies could easily have started with Christopher Columbus, as he was the first to leave recorded accounts of the Native Americans. He wrote in 1493, "So lovable, so tactable, so peaceable are these people that I swear to your Majesties that there is not

by WM. JACK HRANICKY



in the world a better nation nor better land. They love their neighbors as themselves and their discourse is ever sweet and gentle and accompanied with a smile."

These people, with the possible exception of the Indians from Middle America, left no written records; and thus the archeologists, by excavating sites, can dig into the past and, from site analysis, offer explanations of how these early people lived in the New World. This is the scope of American prehistoric archeology within the United States.

The archeologist deduces from the material remains found on sites, such as: tools and weapons, food remains, house and camp patterns, clothing, burials, and the life customs of communities that have long since disappeared. This reconstruction of life-ways, or culture make-up, comes from the silent testimony of the remains now buried in the earth. The site, which is the smallest unit of archeological research, is only part of the archeologist's endeavors called field work. These sites are not excavated just for digging experience, but are excavated for particular purposes, such as: finding out the age of a particular projectile point or the distribution of a particular type of pottery.

The excavation techniques are the cru-

cial elements in the study of prehistory, simply because the archeologist destroys as he preserves. Once a site has been excavated, there is no redoing it; and all possible information must be obtained from a site. Accurate records, photographs and maps are maintained for each site. The excavation, in many cases, produces thousands of artifacts; and each is properly recorded and, later in the laboratory, can be a clue as to just how people lived at a particular time and place.

These artifact collections, when analyzed by an archeologist, can tell: 1. the modes of living and, hence, the culture; 2. the origin and development of their cultural complexes; 3. their migrations from one part of the country to another; 4. the extent of acculturation, or their borrowing of ideas from other cultures; 5. the decline or replacement of cultures; 6. the identification in some cases with documented historic Indian groups; and 7. the nature and extent of their trade with other areas.

The list is virtually endless, but is dependent on good field work. Field work, however, is only one facet of archeology. There are four basic elements in archeology—each of equal importance. They are: 1. the survey (finding sites); 2. excavation (the digging of a site);

3. interpretation (explaining what is found on a site); and 4. the publication (informing others what the site contains).

The Survey in Archeology

An archeological site survey is the beginning step for an investigation of a given geographic region. The survey attempts to locate as many of the area's sites as possible, to define the nature and importance of these sites through surface examination and the collection of surface artifacts and to produce an adequate record of sites for future consultation; for it is usually from the survey records that the archeologist selects and justifies an excavation of a site.

There are many techniques for finding archeological sites; but in far too many cases, sites are found by accident or discovered as a by-product of some other occupation such as farming, road construction or digging foundations for new buildings. The locations of these finds are often reported by local amateur archeologists, historians or the interested lay public. Road construction, real estate developers and dam building are the primary causes of site destruction; and, if the archeologist knows about a site that is threatened by this construction, an excavation can be set up well in advance in



Rattlesnake disc from Moundville, Alabama. Possibly a ceremonial object that can be attributed to the "Southern Cult."
Dates
1200-1500
A.D.

order to save the artifacts and information that the site offers.

It is the accidental discovery that causes problems because, generally, there is not enough time to excavate the site completely and, thus, much of the materials are lost forever. This type of archeology is called salvage archeology and is what the name implies—a salvage operation. The record of site locations is essential to the preservation of America's prehistory, as well as history (the distinction being written vs. non-written records), and it is here that you can help. Should you find artifacts, bones, etc., on your property, call the anthropology department at your local university, and they will tell you the proper people to notify.

To find a site deliberately, the archeologist must familiarize himself with the landscape as it exists today and also be able to visualize what the terrain looked like in prehistoric times. Essentially what may not be habitable today may have been an ideal location several thousand years ago. In making observations of a particular area, the survey archeologist notices things that look out of place, such as: an unnatural contour of a hill, unusual kinds of vegetation, and/or soil differing in color from that of the surrounding area. Direct inspection of suspicious or unnatural topographic features of the landscape should reveal whether or not early man used the area. If the surface contains flint materials or pottery sherds, there is a good likelihood

that the archeologist will find a site there.

In finding sites, the archeologist must be familiar with the type of culture he is seeking to investigate. Prehistoric hunters preferred to camp near concentrations of game. Farming societies often preferred to plant in certain types of soil. Gathering societies did not camp long in one place, but frequently did have seasonal migration patterns which enabled them to arrive in a particular area for the maturation of fruits, berries or wild vegetables. One of the most important limitations on the location of the sites of prehistoric peoples was the availability of water. Sites are usually, but by no means always, close to a river, stream or lake. Also, they often preferred a location where two streams or rivers ran together. This availability of a water supply must be based on the archeologist's knowledge of paleogeology, for rivers change courses and lakes dry up and, thus, the environment of early man may have been, and in most cases, quite different from the environment of today. Once a site is found by the survey archeologist, he generally uses a site survey form to record all of the information about the site. Each state usually has its own survey forms, but they always include: site description and number, location and name of owner(s), conditions of the site, list of and the collection of surface materials and, in some cases, the analysis of test pits on the site. These forms are then turned over to an

agency in charge of prehistoric resources. The files of these agencies are the source of protection and of research in archeology.

Just knowing where sites are can often aid regional, city, state or federal planning commissions in the construction of dams, roads, buildings, etc. For if federal money is involved in any construction site, the law guarantees the adequate excavation or preservation of sites threatened by construction. Without survey reports, we would lose thousands of sites each year; and, of course, once a site has been bulldozed, the evidence about prehistory is destroyed forever.

The Excavation in Archeology

A popular misconception is that archeologists just "dig." Excavation is only one of the archeologist's tasks, although it is an important one. Another misconception is that archeologists dig every site that is found. Nothing could be farther from the truth. The archeologists try to limit themselves to excavating significant sites of past human occupation that will add new information or help solve archeological problems in interpreting prehistory. These problems might consist of inadequate dating of particular sites, time gaps or unclear relationships between cultures that are close to time and area. The archeologists, in trying to solve these problems and others like them, select their sites for excavation in the hope that the answers may be found buried in the earth.

The most essential part of an excavation is keeping control of the digging. The technique of laying out a grid over the site and then digging each square is a well-established method in archeology. By digging each square in levels and recording everything that is found in each level, a true picture of what happened and when it happened can be obtained from the site. These levels, known as the vertical stratigraphy of a site, generally reveal the buried order of artifacts on a site. That is, the youngest artifacts are on or in the upper levels; and, conversely, the oldest artifacts are buried in the lower levels. By recording each square by number and each level by number, the exact location of any artifact on a site is known and its relative distribution or placement among all artifacts yields the mental picture of what the people did when they lived there.

The basic part of an excavation is the

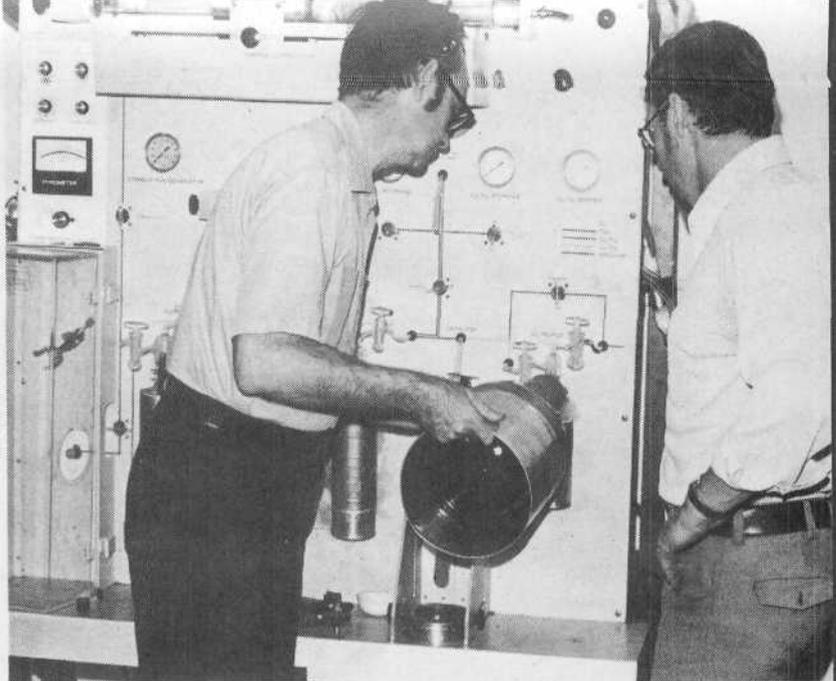
field notes make by the site director during the excavation. These notes include: mapping and plotting features (feature—a group of objects or artifacts, rather than a single artifact), photographs, and the various printed archeological forms—such as the burial form (a separate record is made showing the location, a drawing, position and associated artifacts of a burial). The site map is the plotting of all permanent features, such as wells, floors, hearths, concentration of stones, burials and caches and is also a major part of the director's field notes.

In working in a square on the site, most archeologists use a mason's trowel with a four-inch blade. With practice, this tool can accomplish surprisingly delicate work. Trowels are used in the actual excavation in what we call the occupation area or midden, and for uncovering and excavating in the immediate vicinity of burials, features and artifacts. Other tools make up the archeologist's tool box, such as: shovels, small spatulas, small brushes, cutting tools, bamboo or orangewood sticks with pointed ends. Each tool box differs according to the personal preferences of the particular archeologist, and those that I have mentioned are only a few of the basic tools.

The actual work within a square may take days or even months to finish. Besides trowelling carefully and examining everything, whether rocks, bones or artifacts, the archeologist additionally screens the dirt from the square to recheck it for artifacts that might have been missed in troweling. Another process after screening is called the flotation method. This method involves putting the dirt from a square in a water solution and recovering all materials that float to the surface. This will often catch seeds and other small objects missed during the original troweling and screening. All artifacts from a square are recorded as to square number and level and placed in bags for later analysis in the laboratory.

For most people, an archeological excavation in America means digging for projectile points, or the popular term, "arrowheads." (It should be noted here that archeologists never use the term "arrowhead," since few projectile points were ever used as the points of arrows and, thus, the term "projectile point"

This apparatus prepares carbon samples for the Carbon-14 method. This equipment is part of the Radiocarbon Lab at the University of Georgia.



encompasses all uses such as spears, darts and arrows.) Projectile points, in many cases, are the minority artifact found on an archeological site. While it is true that we excavate a site to find artifacts, there is a vast variety of artifacts. These artifacts are the fossils of ancient civilizations and, in a metaphorical sense, reflect the development of the various cultures of mankind. Care, combined with observation, pertinacity and adaptability, is a necessary requirement for excavating material remains on a site.

Most American sites contain essentially two types of artifacts. These are organic artifacts and lithic and metal artifacts. The former type of artifacts is rarely preserved, except under ideal conditions, for periods extending far back into B.C. times. The latter, being more durable, are generally preserved indefinitely, with the exception of metal tools. The organic material remains include bones, whether human or animal, and bone tools, such as bone awls, needles, fishhooks. This classification also includes wood, fibers, leather and skins, which were used in addition to tools for clothing and shelter. The lithic (stone) tools include projectile points, knives, scrapers, drills, saws, chisels, grinding stones, axes, hammers and, in the case of late sites, pottery. Another minor class of artifacts are the metal implements and shell and, sometimes, glass ornaments.

The excavation of human burials from archeological sites is, of course as necessary as the excavation of stone tools and

ceramics. However, it should be noted here that there are social problems involved here; and the complaints of the American Indians are justified in their accusing us of grave robbing. I cannot offer any solution to this problem, but can offer reasons for excavating human burials and point out that the excavation of prehistoric burials occurs all over the world in the name of science. No single artifact from an archeological site comes closer to reflecting what the original inhabitants of the area were like than the human skeleton.

When excavated properly, human skeletal remains can give the archeologist an abundance of data, such as burial techniques, demographic statistics, insights into types of diseases and morphological features of the former inhabitants. The entire collection of skeletons from a site is the best indication of the over-all picture of the prehistoric population. Thus, any one skeleton, like any one projectile point, is only important when considered with the total group or population; and this collection can represent the vital statistics.

These vital statistics, or paleodemography, include, among the parameters already mentioned, the age composition of the population, mortality, longevity, sex ratios, fecundity and the natural rate of increase or decrease in the size of the former population. The more skeletons that a site director can obtain from his site, the more accurate the estimation of the makeup of the former population.

To Be Concluded Next Month

*Looking south from Aguerberry Point
with snow-capped Telescope Peak
dominating view.
Trail Canyon is the
wash on the lower left.*

Death Valley's Trail Canyon

by ERNIE COWAN

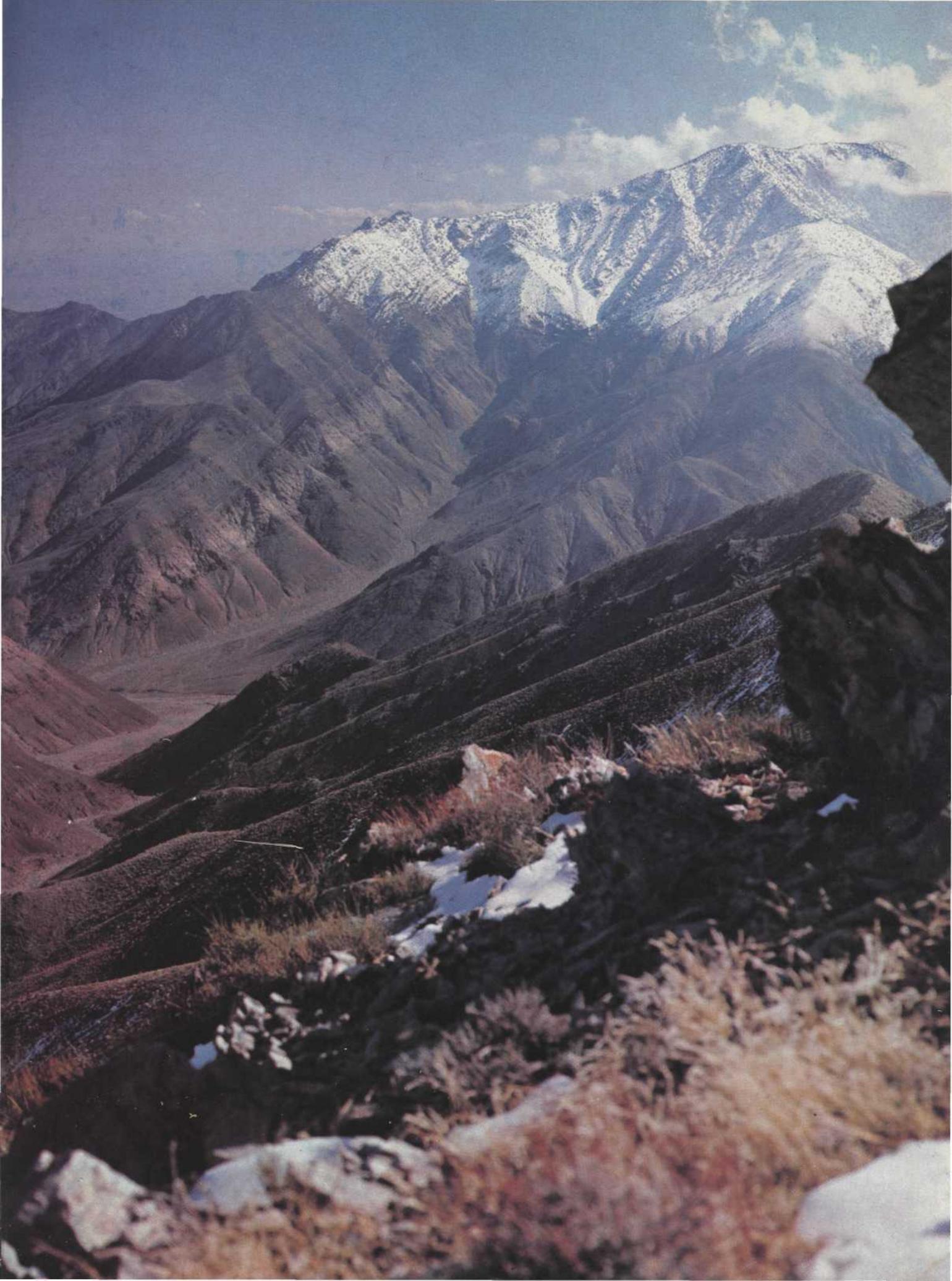
SOMEHOW, MUSHING through six inches of snow as a cold winter wind cut through my parka didn't exactly seem like the storybook image of Death Valley. But it was March and I was high in the Panamint Mountains, in the shadow of Telescope Peak that towers more than 11,000 feet above the floor of Death Valley.

Although my feet were cold as I stood in the snow at Aguerberry Point, I was

looking down more than a mile to where people were enjoying blooming wildflowers and temperatures in the 80s.

A friend and I were spending a week in Death Valley and this day we had decided to follow an interesting Jeep road that climbs to nearly 7,000 feet, then descends to nearly 200 feet below sea level. Our day-long journey would include a visit to the ghost town of Skidoo, some spectacular view points, and an in-







surrounding the town. Today, Skidoo is more a memory or mood than fact. Little remains of the old town, and the only substantial structure is a park service sign.

After a tailgate lunch, we left Skidoo heading for Aguerberry Point. Returning to the main highway and turning south, the Aguerberry Point Road turns off to the left in 2.3 miles.

This road winds across a high desert flat, gently climbing into the mountains past the site of Harrisburg. It's about 6.5 miles to the lookout point.

At 6,279 feet, Aguerberry Point offers a commanding view of Death Valley. Miner Pete Aguerberry thought so, too, so he built the road to this overlook using only hand tools and then he gave it to the National Park Service.

At the point, the visitor can gaze down into the valley and see everything from south of Badwater to the Grapevine Mountains on the northeast boundary of the monument. And on this particular day, the recent storm had cleared the air so the intricate lines of faraway mountains could be seen clearly. Before us, Death Valley was spread out in incredi-



teresting drive down Trail Canyon.

This particular Death Valley trip is an easy one-day loop from the National Park Headquarters at Furnace Creek. You should begin your trip by checking with rangers at the visitor center, since severe weather can close this route during some periods. In fact, when we checked in with the rangers, they were unsure the Trail Canyon route would be open because of the storms that had deposited the snow we would encounter.

Much of the route we were to follow was a road that the average family car can follow, but from Aguerberry Point down Trail Canyon is four-wheel-drive only. Rangers also recommend that Trail Canyon be considered a one-way route, down hill.

As I said, much of the route is passable to the average car—usually.

The heavy snow required us to use four-wheel-drive almost as soon as we left the pavement. We began our exploration by heading for the ruins of Skidoo. The turnoff to Skidoo is 9.5 miles south of Emigrant Junction ranger station on the Emigrant Pass highway.

Dropping my Blazer into low gear, we began to slip through wet, melting snow as we started the climb into the Panamints. The road to Skidoo buttonhooks around a mountain about seven miles into a wide valley where hardy people once established a toe-hold town.

Skidoo was a gold town that sprang to life in 1906 for just a very brief 11 years. Eventually, about 700 people came to call Skidoo home, but it was hardly more than a tent city. But Skidoo did thrive during its short life, as \$1.5 million in gold was gouged from the mountains

Opposite page:
This is the head
of Trail Canyon
road where it
begins its plunge
toward the floor
of Death Valley.

Right: The
parking area at
Aguereberry
Point.

Below: These
playful-looking
little burros
actually wanted
no part of us,
and when we got
too close,
they fled.



ble clarity. It was like looking at a map of the utmost detail.

About 2 p.m. we left Augereberry Point and began the 12-mile plunge down Trail Canyon to the Valley floor. I say "plunge" because this route is, in places, extremely steep.

Trail Canyon is only a few miles from the area where Patricia des Roses Moehlman conducted an 18-month study of the wild burros of Death Valley and reported her findings in the April 1972 issue of *National Geographic Magazine*. So, as we began to drop into the warmer, drier desert, we started to look for evidence of the burro.

It wasn't long before we began to notice small tracks in the sandy road and the characteristic droppings. And off in the distance we noticed two ears sticking above some scrub and two curious eyes following our progress. When the steep road finally dropped into a wash bottom, we came face-to-face with four burros socializing around an isolated water hole.

They watched us for a time and didn't seem worried about our being there until we decided to get closer. As we ap-

proached for pictures, they decided enough was enough and trotted off.

Trail Canyon has some excellent places where you can camp if you would rather avoid the more developed campgrounds. Park rules do allow for overnight camping if you are more than five miles from a designated campground, one mile from a paved or graded road, and not in a day-use-only area.

But we had camp already set up at Furnace Creek, so we had to continue on. As we were nearing the mouth of the canyon, a colorful scene lay ahead of us as mountains, clouds and reflections from Badwater combined to create an artist's scene.

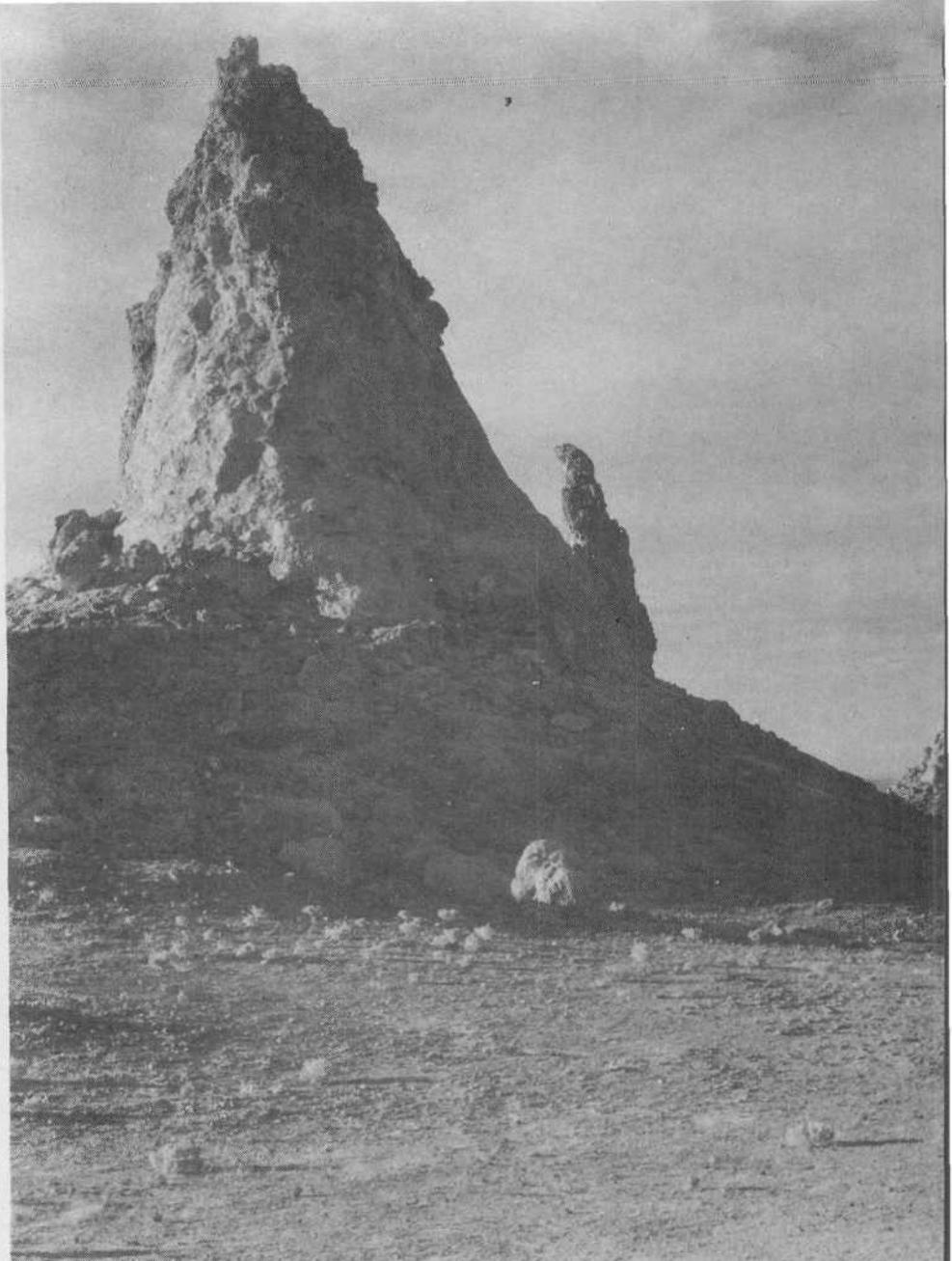
It was now about 5 p.m. and we were completing our day of exploration of a part of the Panamint Range along Death Valley's western fringe.

I think of all the places I have visited in Death Valley, the Trail Canyon route is one of my favorites because it offers such a variety of terrain from the windy, pinon slopes of desert mountains, to the lowest point in the United States.

Trail Canyon is a trail everyone should take the time to enjoy. □

Bedrock Canyon and Beyond

by MARY FRANCES STRONG
photos by Jerry Strong



BEDROCK CANYON, in the northeastern flank of California's Lava Mountains, has been one of my favorite desert retreats for over two decades. Offering a choice of camping among Joshua trees on the high plain or electing to savor the solitude of primeval recesses in the deep canyon, it was a place to escape the routine of daily living. Four-wheel-drive was, and still is, a necessity, if Bedrock Canyon and beyond are to be enjoyed.

Beginning at the summit of Klinker Mountain, moisture from infrequent storms gathers and rushes down the slopes carrying considerable debris. When it reaches less resistant rock, the cutting action begins and, in this case, the result is Bedrock Canyon. These forces are still going on and changes have been very noticeable even during

my quarter-century of observation.

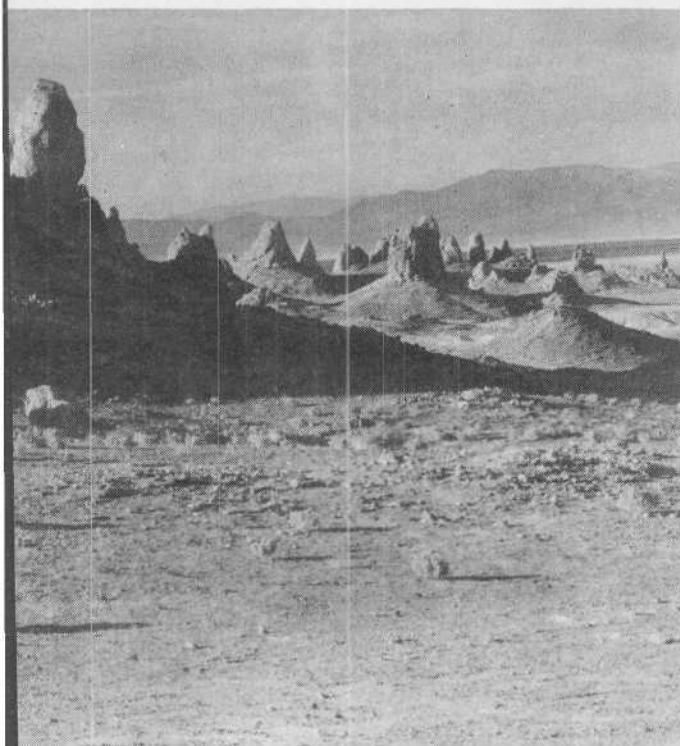
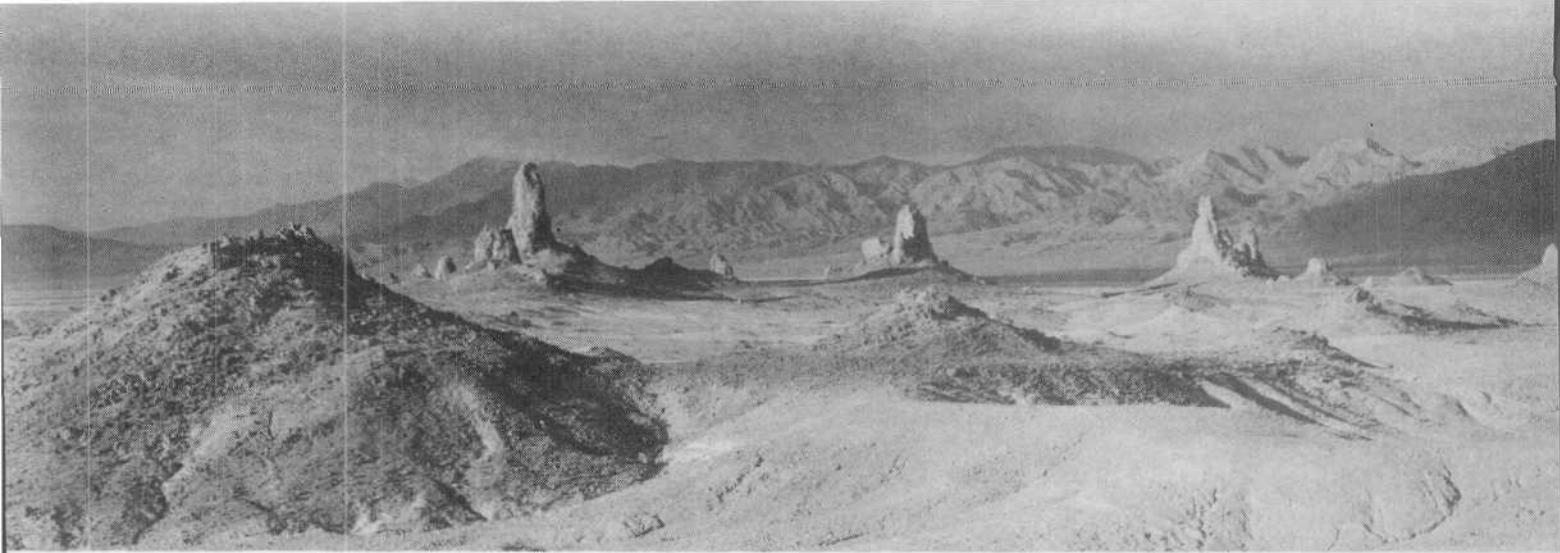
Spring can be a very colorful event in this canyon country, if rain has fallen at the proper time. It doesn't happen often but when it does — the sight is one that will never be forgotten. Wildflowers are everywhere in such a profusion of variety and color they dazzle the eye. Wildflower bloom is hard to predict and impossible to do so here, since *Desert* goes "to bed" early. However, if there are several spring rains, conditions for April flowers will be encouraging.

Over the years I have shared my affection for Bedrock Canyon in the company of a friend of long-standing and with my husband Jerry. The first spring I saw the canyon country in full bloom, I was with the late Edwin "Kirk" Kirkland — old friend and long-time resident of Red Mountain. We were exploring in

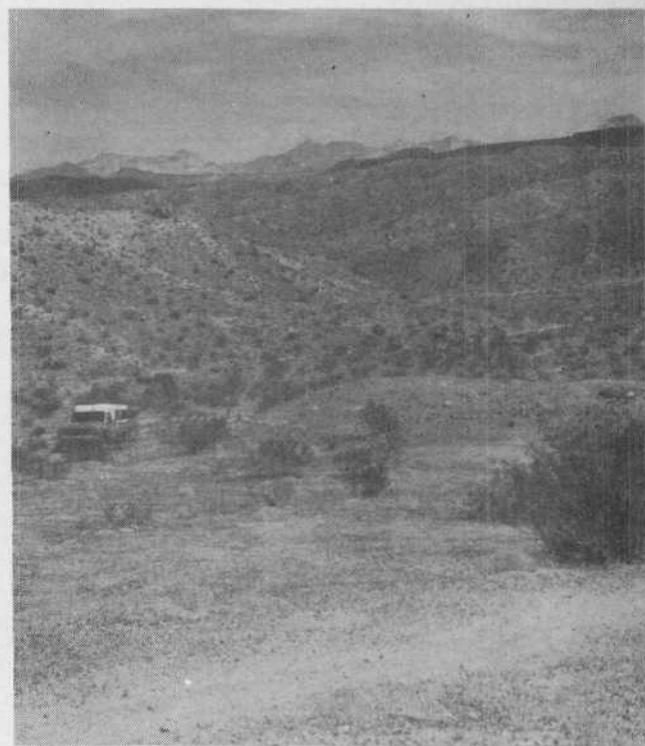
his little military Jeep and the fragrance of the flowers was almost overpowering. It was hard to believe all this beauty had been lying dormant in barren ground.

Down in the canyon, Kirk and I hiked up to Bedrock Spring and found water running clear and inviting. Springs in arid country provide the lifeline for desert fauna and the many tracks we saw along the trail indicated a variety of visitors. A short tunnel had been dug into the bank at the site of the spring and "hummers" hovered over the mesquite bushes which lined the path of overflow. While we rested and enjoyed this tiny desert oasis, Kirk told me what he had heard about the canyon's history.

"There has been a lot of prospecting in this country. Men came through in considerable numbers between 1860 and 1895. They discovered Last Chance



Above and left: The Pinnacles stand at the southwestern edge of Searles Lake. These unusual deposits are considered one of the most spectacular tufa formations in North America. Right: This smooth, rounded mound in a side canyon is a "blow out" containing plume and moss agate plus clear chalcedony. In the foreground is one of the myriad of bike trails evident along the canyon floor and over surrounding mountains.



Gulch, Red Rock Diggings, Goler Gulch, Summit Diggings and, finally, the great strike at Randsburg. Not much was found in this immediate area though the Summit Diggings lie only a few ridges west. Across the flats to the north, gold veins were located about 1896."

There was a pause, then Kirk asked, "Would you believe that mules pulled wagon loads of borax up Bedrock Canyon?"

"That is mighty hard to believe," I replied.

"Well," Kirk continued, "the father of one of my friends regularly drove a wagon through here. I believe he was hauling ore from Searles Lake to Los Angeles. That was about 1875-76. Even I remember the rock house that once stood where the trail turns into the spring. It was a sort of way-station where freight-

ers stopped overnight to rest and water their mules before climbing the grade to the summit."

To me, it seemed an almost impossible feat for mules to accomplish, since four-wheel-drive is needed to negotiate the trail today. But then, man and animal once performed quite well under the same conditions where we now use our "four-wheelers."

Kirk also explained that a cattle rancher set up shop in the cabin and canyon during the twenties. Water was available for stock and spring rains were favorable for grass. However, in the desert region, good rains do not come every year and there are more "dry than wet" years and the cattleman moved on.

There have been many subsequent visits to Bedrock Canyon since Kirk and I enjoyed the exceptionally fine wildflower

display. More than a decade would pass before a comparable bloom occurred. During the latter, Jerry and I camped amid the fields of flowers and had trouble finding the trail which was carpeted with blooms. Old Mother Nature is not generous with her treasures and I feel privileged to have seen two such magnificent wildflower displays.

Jerry and I recently returned to Bedrock Canyon after an absence of several years. As I had assumed, it had been discovered by others who came from the city to enjoy the desert's clear, clean, wide-open spaces. They were mainly cycle riders who camped near the summit and rode the dozens of trails over surrounding hills. The Bureau of Land Management has designated this region as Area 11 on their Interim Desert Management Plan, and open to all



The siding at Spangler, on the Trona Railroad, is still in use.

vehicular use.

The old trail from the summit into the canyon, had been "chopped into a soft-dirt slush" by motorcycles and several deep holes awaited unwary drivers. It is no longer advisable to go beyond the summit without four-wheel-drive.

Reaching the canyon floor, I was relieved to find it largely the same except for the "ever present" bike trails. We parked at the old water troughs and made the short hike to the spring. It was dry! The tunnel entrance had been partially blocked in an attempt to hold any seepage. Even the desert has suffered from recent years of drought and numerous springs have dried up.

Returning to the canyon, we continued down the wash then joined a four-wheel-drive trail on the west side. We wanted to check out the jasp-agate location before heading down canyon and beyond. Much to our surprise, the locale appeared as if few rock collectors had been there since we last poked around. This is a "blow out" type deposit and material occurs in an almost circular, grey mound up in a side canyon. Plume and moss agate may be found in shades of red, green, yellow, chocolate-brown and purple along with clear chalcedony. Most specimens are of cabochon size and good quality.

Camp can be made at the collecting area but only for four-wheel-drive. Trailers should be parked in the Joshua grove near the summit. See map.

From the agate area, we followed a trail down canyon and encountered a Road Y at the point where the wide wash spills out onto the flats. The right branch was the old wagon road leading northeast around Searles Lake to a junction with Wingate Wash Road that leads into Death Valley. It also continues north to Panamint Valley.

We elected to take the left branch and join the "westside" road. We bounced along through both rocky and sandy stretches of trail which were hardly a small challenge for a four-wheeler. However, the route from Bedrock Summit to the Trona Railroad is not advisable for stock cars.

Reaching the railroad we turned right (east) and traveled along the southern edge of the hills to Spangler Siding — a former railroad water stop. Walking around the general area, we found evidence of considerable early-day occupancy — purple glass, old bottles and ruins of several foundations. A dirt road still leads north and gives access to mines and claims in the Spangler Hills District.

The great Randsburg strike had been made in 1895. With all eyes on this exploding desert bonanza, little publicity was given the Spangler strike of 1896. William Spangler, aided by his two sons, drove tunnels, shafts and winzes in order to develop a gold-bearing quartz vein which seemed promising. Mining reports show only a small tonnage of ore,

averaging \$40.00 per ton, was shipped; though the mine has been worked in intermittently over the years.

Whether or not the original discoverer wanted his name to live in perpetuity, it will, as both the hills and siding bear his name. If visiting old mines is your bag, as it is mine, you will enjoy exploring the Spangler District.

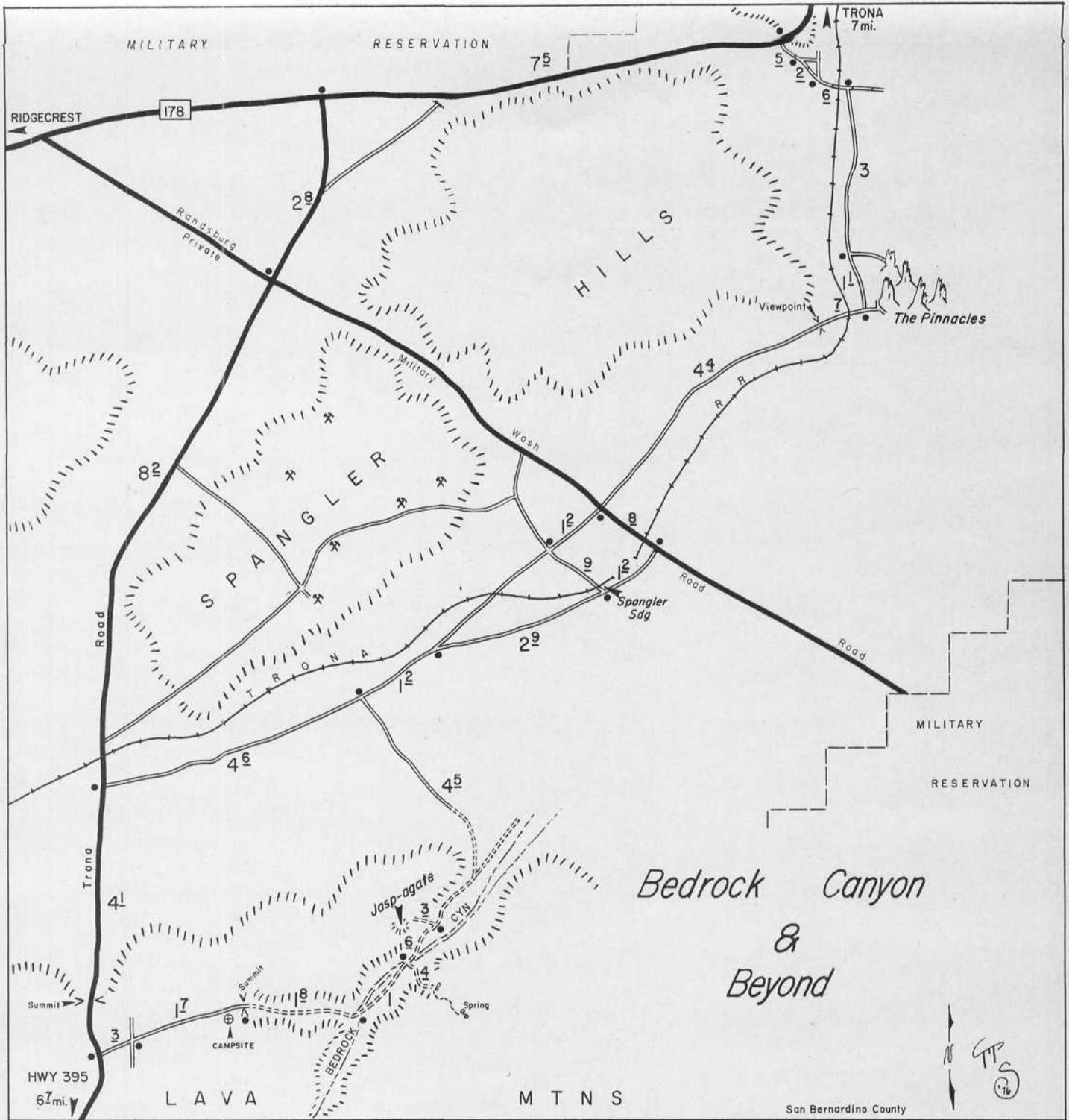
On this particular trip, our final objective was to follow a trail — shown on our 1915 map — to The Pinnacles on Searles Lake. It was not the best or shortest route but turned out to be far more scenic than the one generally used. A few minutes travel brought us to the U.S. Navy's Randsburg Wash Road. We crossed quickly — the road is private — and continued northeast. Isolated tufa domes began to appear alongside the road and, far ahead, we could see the pinnacles assuming shape on the lake bed.

Hills hid the settled areas — Trona, Argus, Westend and their plants. The view was breathtaking! Our eyes swept across the vastness of Searles Lake and encountered the bold nakedness of the Panamint Range. We watched entranced as the rays from a descending sun produced a myriad of ever-changing shadows on distant peaks.

Suddenly, the road climbed a slight hill and there ahead, in the autumn colors of late afternoon, stood The Trona Pinnacles. From this vantage point, slightly above and a mile southwest, they seemed unreal. It was as if a "moonscape" had come to rest on the lake bed.

Close inspection shows the pinnacles have sharp, spire-like forms, as well as more rounded prominences. They vary in size with the tallest rising almost 150 feet above the lake bed. Some stand singularly, while others have gathered into "family groups" of varying sizes. In one area, a series of pinnacles form a "ridge-back" which resembles the prehistoric, plated dinosaur — Stegosaurus. In the play of light and shadows on the pinnacles, a little imagination will easily conjure up wild, weird and wonderful images.

The Pinnacles are tufa domes, believed to have been formed when Searles Lake was a large body of fresh water. Numerous hot springs vented into the lake bottom and blue-green algae set up housekeeping around their openings.



Such algae utilizes the carbon dioxide in water when feeding. In doing so, it causes calcium carbonate to settle. This, combined with their skeletal remains, often forms domes. Through eons of time, they can build up to great heights, if the level of surface water rises. When the lake dried up, the resulting formations became the Trona Pinnacles — perhaps, the most outstanding formation of its kind in North America.

The Pinnacles were declared a Natural History Landmark in October 1967. It is unlawful to break apart or remove any of the formations — loose or otherwise.

They have also been chosen as one of the areas to be dedicated as a National Natural History Landmark during our country's Bicentennial Celebration.

In its proposed plan for management of The Pinnacles, the Bureau of Land Management will provide a buffer zone around the locale and develop camping and picnicking sites. Access roads will be limited and this outstanding geological formation protected. Vandalism and mining have already caused some damage.

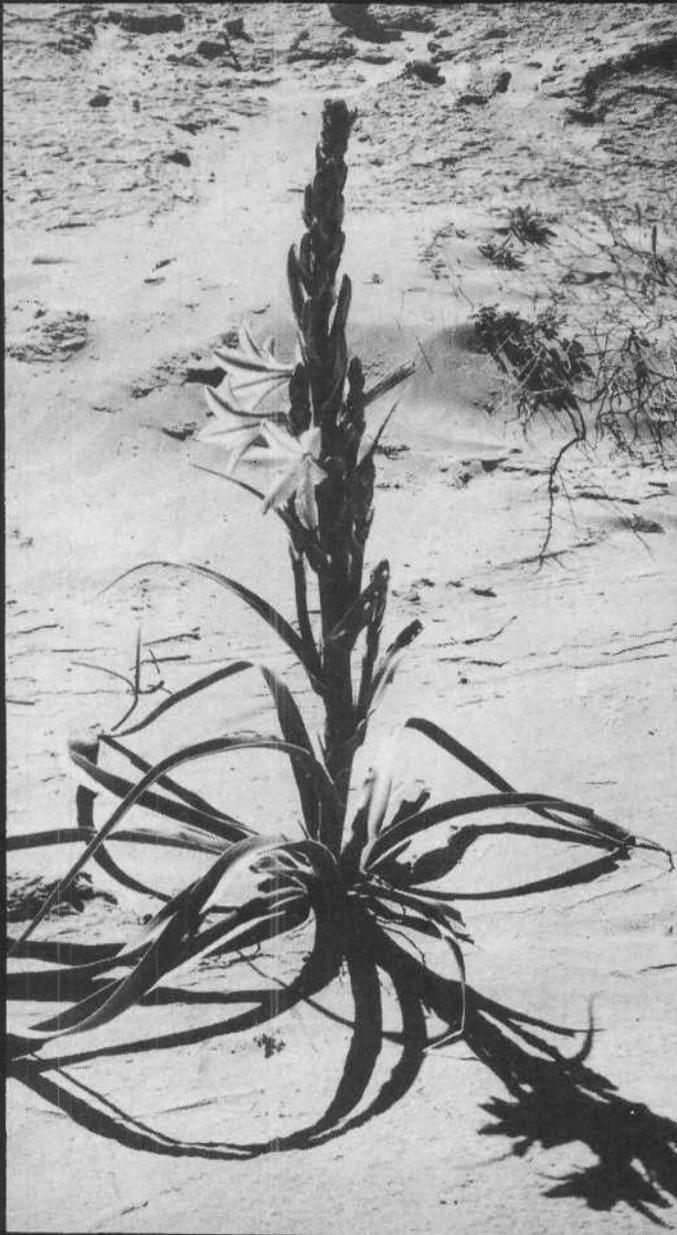
Currently, there are no developed facilities, but good campsites, which have

seen long use, will be found throughout the area. Visitors are now required to stay on *existing roads and trails* until further management plans are finalized by B.L.M.

At the present time, Bedrock Canyon and beyond remain an intriguing region we may explore without too many restrictions. Camped in a quiet canyon recess under a blanket of sparkling stars, the desert seems to be ours alone. Savor it now and fill your soul with memories of these halcyon days. In the all too near future, the freedom to roam the desert at will — will not be ours. □

Wildflower Phenomena

by PAUL JOHNSON



FIRST TO FLOWER in the valleys wedged between the western ridges of the Colorado Desert is often a nodding little primrose with the imposing scientific title of *Oenothera clavaeformis*. Its seed pod or fruit was thought to resemble a club (Latin for club is *clavaeform*); but its eyes are brown (referring to spots on the lower portion of the petals) and so it is known by common folk as "brown-eyed primrose."

Within a few weeks the primrose's relatives and neighbors have broken the desert crust and the annual bloom has begun again. By the end of March or mid-April, if rain and winds cooperate, there may be hundreds of acres of fragile annual plants decorating the desert floor. For eight or nine months during the rest of the year, that desert floor is a dry, barren expanse of sand and gravel, interrupted occasionally by a creosote bush or some other sturdy desert shrub.

Have you ever wondered why such an apparently lifeless and inhospitable environment should be the scene of a most spectacular annual wildflower bloom?

It is impossible for a delicate, broadleaved, soft-bodied plant to survive in the California deserts during the heat of summer or the drought which descends from late May through December or longer. It is also impossible for more than a few of the hearty perennial plants to survive the same period. Consequently, there are large expanses of desert lands which remain unpopulated by plants of any kind for nearly three-fourth's of the year. The ground is fertile and viable, but the climatic conditions prevent any but the toughest plants from surviving.

When the colorful and delicate wildflowers put on their show in the springtime, it is not because they have suddenly developed an ability to withstand the rigors of the desert environment. Rather, it is because for that brief period of two to three months the desert is not a desert, but a virtual haven for plant



Opposite page:
The beautiful
Desert Lily
taken in the
Borrego Badlands.
Photo by
Norman Moore.
Right:
Brittle Bush
or Incienso
in Coyote Canyon.

life — a place of soft rains, mild temperatures, rich and fertile soils, and best of all, practically no competition from older, better established vegetation. So the blossoms go wild, and for a few weeks or months you would think you were in a sort of flowering paradise. By May, if the winds haven't blown everything away, the air temperature soars to over 100

degrees, ground temperatures exceed 150 degrees, nearly all water evaporates, and lush acres of flowering annual plants become a barren expanse of dried stems and curled leaves. Soon, the only evidence of their existence will be the hardcoated seeds they left behind, seeds tough enough to endure the coming months when the desert is again a desert. □

Idaho

Ghost Towns...

Alive and Doing Well

by GARY SMITH

Editor's Note:
This article Contains
several ghost towns
that are privately
owned and posted as
such. Permission to
visit must be obtained.



Opp. page: Survivor of numerous booms and desertions, this old log cabin is one of the more picturesque in Bonanza.

Right: This marvelous old mill has been undisturbed for 50 years at Bayhorse, but with the rising market value of gold activity is starting to pick up around the long deserted townsite.



IDAHO'S GHOST TOWNS are alive and doing well, thanks to the current market value of gold and a handful of land speculators who are anticipating a boom in back country land prices during the next few years.

As a matter of fact, there appears to be more people in some of the ghost towns than in many of the small populated communities in the mining districts near Challis and Salmon, where my family recently spent a one week vacation.

Since our arrival in Idaho a year ago, we had looked forward to a trip to the old mining ghost towns and prior to our vacation purchased a number of books on the mining districts and the towns that were once located there.

From our research we surmised that the majority of the ghost towns, the exceptions being only one or two, were relatively deserted and open to the public. But, unfortunately, this is not the case.

Of the eight ghost towns we visited during our jaunt through the back country, six were privately-owned and do not readily welcome visitors, while the other two are classified as state historical sites

and are crowded with tourists, particularly during the summer months.

While this situation might not bother most people, it put a damper on our trip because it restricted my comings and goings with a camera and restricted my son from using his metal detector to search for lost relics around the old sites. However, I still managed to shoot some 400 photographs and we did a little metal detecting at some of the remote cabins away from the town sites.

The trip, although rough and disappointing at times, was an education in itself and those colorful names — Bonanza, Custer, Lucky Boy, Leesburg, Yellow Jacket, Moose Creek, Cobalt and Bayhorse — mean a lot more to us now than just a tiny dot on the Gem State road map.

BONANZA

On our first day out we visited the historical sites of Bonanza and Custer, probably the easiest of all the ghost towns to reach since extensive road work in the area has resulted in a wide, relatively smooth all-weather gravel road

bordering the Yankee Fork of the Salmon River. Some eight miles north on this road from the U.S. Highway 93 turnoff at Sunbeam, Idaho, is the old townsite of Bonanza.

First settled in 1876, the name Bonanza denotes the optimism early day miners felt for this location. A prospector originally discovered a rich outcropping in 1875 and it was subsequently named the "Charles Dickens Lode." The town, which consisted initially of a store and saloon, was built in 1876 and streets constructed in 1877. Custer County's first newspaper, the *Yankee Fork Herald*, began publication July 24, 1879, in Bonanza.

By 1880 the population of Bonanza was about 1,500 and the town boasted a two-story hotel, dance hall, and three main streets crowded with 28 business establishments.

Five years later, when a stamp mill was built at the nearby General Custer Mine to the north, a new town sprung up by its side and Bonanza began to die.

Things have been quiet in Bonanza for the past 60 years, except for a dredging



Main Street at Leesburg.
Old post office in foreground.

odic tours through the old townsite when enough visitors are on hand and indicate an interest. The Ranger reminded us, however, that it is against the law to use a metal detector in either Custer or Bonanza, since both are historical sites and protected by the state antiquity law. He suggested that we make the trip up the mountain and contact the owner of the Lucky Boy to get permission to try our luck there.

LUCKY BOY

We decided to bypass the three-mile hike up the side of the mountain to the Lucky Boy and, instead, attempted the six-mile road trip up a steep, winding grade with deep ruts and crumbling shoulders.

We had gone less than a mile when we encountered a deep stream crossing the roadway. Not wanting to risk getting our Volkswagen bus stuck in the water, we parked the vehicle and proceeded to hike the remaining five miles or so along the road.

After two or three exhausting miles it became apparent that the bus would never have made it and it looked like we wouldn't either. Just as we were about to call it a day and start a return trek down the mountain, a pickup truck appeared from around a bend in the road and the driver offered us a ride to the bottom where we had left our bus.

It turned out to be a real chance meeting as the driver, E.D. Moon of Heyburn, Idaho, was in fact the owner of Lucky Boy, a mining engineer and the head of a corporation currently working the old Lucky Boy and General Custer mines.

Moon told me that he drives up to the mine every day and although the property is posted against trespassing to keep tourists and scavengers out, my family was most welcome to spend as much time as we wanted taking pictures and searching for relics. "Anything you find under the ground you may keep, just don't take any of the old mining implements and other things that you see sitting around or in the deserted shacks," he said.

operation in the 1940's and early '50's and the tourists and curiosity seekers in more recent years. The dredge is still there on the banks of the Yankee Fork and the results of its operation are evident on the surrounding landscape.

Today, only eight buildings stand vacant in what was once a thriving townsite. In the center of the town is an occupied cabin and on a hillside overlooking the town is the Bonanza Guard Station.

A well-preserved cemetery, located about one mile from the Guard Station, is fenced and protected by the Forest Service.

CUSTER

Two miles north of Bonanza lies the remains of one of the most important of the early day mining centers, Custer.

In 1876, a year after the discovery of the Charles Dickens Lode near Bonanza, three prospectors located a vein of greater promise and named it "General Custer."

Custer's townsite was laid out in 1878 and lots were given to anyone who would erect a building. Between 1880 and 1881, when the town was at its zenith, the population was estimated at about 3,500 persons.

The Custer Mill was built in 1880 and ore from surrounding mines was processed until 1904. It is believed that gold valued at \$11 to \$12 million dollars was

recovered during this period. Mines furnishing ore to the mill included the General Custer, Lucky Boy, Fourth of July, McFadden, Sunbeam, Charles Dickens and the Montana. All were located near Custer.

About 1895 a new vein was found near the old Custer tunnels, three miles over the mountain as the crow flies, and many inhabitants of Custer moved to the new lode dubbed "Lucky Boy." The Lucky Boy released another million dollars' worth of gold in nine years and closed down in 1904, the same year a new find was made on the Jordan Creek.

The mill and most of the buildings are gone from Custer and today only seven structures remain standing. Among these are the school house, which now serves as a museum, the old McKensie residence and the doctor's house.

A.W. "Tuff" McGowan, who was born and raised in Custer, spent many years and a lot of money collecting, preserving and displaying the items in the museum which he turned over to the Forest Service in 1966. The museum contains a wide assortment of mining implements, as well as personal belongings of the miners and their families.

Custer joined the growing list of mining ghost towns in 1910 when the remaining few families packed up some of their belongings and moved to greener pastures.

Forest Service personnel conduct peri-

The following day was undoubtedly the most enjoyable and exciting experience of the whole trip as we had an entire ghost town, complete with 16 buildings, two mills, 13 shafts and about 11 tunnels, completely to ourselves.

My son's metal detector buzzed loudly most of the day and, while the majority of the items he turned up were nothing more than rusted pieces of metal, old tin cans and other worthless junk, he also beamed with joy when he came up with an occasional "treasure find."

An old Winchester nutcracker type hand reloading tool for a .44-40 caliber rifle and some shell casings were discovered in the dirt floor of one cabin, while another cabin floor yielded a woman's ring and a man's gold watch fob. Other choice discoveries included an 1891 Liberty seated dime, an 1894 half eagle of Liberty with coronet, some Chinese coins and a knife with bone handle. For me, they produced nine rolls of treasure film.

Not too much is known about Lucky Boy, except the fact that it was one of the richest mines in the area before it was closed down in 1904. And Moon revealed that its producing days are not over yet.

"I've found a rich looking vein and with the price of gold up considerably and still rising we see a lot of potential here," said Moon, who quit a job with the Atomic Energy Commission in Washington, D.C. five years ago "to go prospecting."

During the winter months, Moon operates his own engineering consultant business in Heyburn, but as soon as summer arrives and the heavy snow melts he closes up shop and heads for Lucky Boy.

After thanking Moon for his cooperation and generosity and bidding him farewell, we returned to U.S. Highway 93 at Sunbeam and traveled about 40 miles to the Bayhorse turnoff, 11 miles south of Challis.

BAYHORSE

A well-marked gravel road leads to the old townsite of Bayhorse, some 3½ miles from the highway, but once there the vis-

The old tool shop on the right and the walkway leading to the stamp mill at Lucky Boy will probably not stand up for many more years.

itor is greeted by a closed gate with "private property" and "no trespassing" signs.

I found a crusty old caretaker who reluctantly agreed to allow us to take pictures but asked that we not write anything about the town. "The property is privately owned and we're preparing to move back into the town and reopen the mines," he said.

The Bayhorse mining district was located in 1863, but little work was actually done in the area until around 1877. During the 1880's and 90's, when the area began to produce ore, the town of Bayhorse came into existence. A smelter, mill and lime kilns were constructed.

An estimated \$10 million in silver and lead were mined in Bayhorse's peak years and operations continued until 1897 when the price of silver declined, making the large scale operation unprofitable.

From 1897 to 1917, work was at a near standstill in Bayhorse. Then, in 1917, mining was resumed and the town came to life once again and remained that way until the mines closed in 1925. About a dozen buildings and a large mill are still found on the Bayhorse site. Although the townsite is closed to the public, the old kilns, looking like enormous beehives, are still standing along the creek a short distance upstream from Bayhorse and the old mine buildings and tramway can be seen a short distance above the kilns.

LEESBURG

Leaving the Challis district, we traveled north on U.S. Highway 93 to the Williams Creek Road turnoff about five miles south of Salmon. We followed this all-weather road 14 miles to the Williams Creek Summit. Beyond the summit the road forks along Napias Creek and seven miles on the right fork brings one to the picturesque ghost town of Leesburg.

The Leesburg story has it that prospectors from northern Montana heard a rumor of a stream of gold high in the southwest hills. Five miners, following directions given them by Indians, worked their way up the Nez Perce Trail, over the divide, to the high slopes overlooking the present site of Leesburg.

Local streams were panned and in 1866 gold-rich gravels were found. The miners named the stream "Napias," the Indian word for gold.

Word of the discovery traveled swiftly and by the autumn of 1866 some 3,000 miners had filed claims along seven miles of stream.

A town sprang up, named for General Robert E. Lee and populated primarily by Southerners. Not to be outdone, the Northerners established Grantsville about a half mile upstream on Napias Creek. The two towns soon grew into one and the entire town eventually thrived under the name favored by the majority — Leesburg.

In 1870 there were more than 100



*An old pickup truck
at Bayhorse waiting forlornly
by an empty gas pump.*

businesses located on the main street of Leesburg. But four years later, in 1874, the town was nearly deserted and the Chinese laborers soon moved in to scour the sands for riches overlooked.

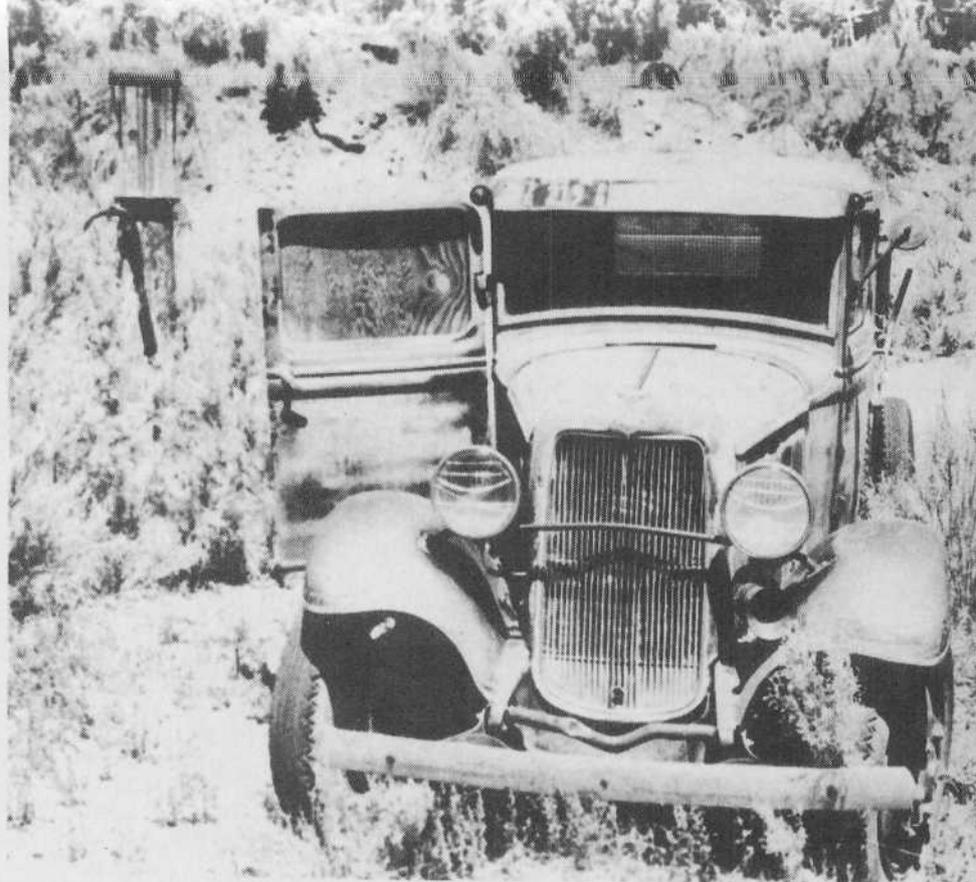
Five years later the Chinese were massacred. The total number killed is not known but reportedly one survived to tell the tragic tale. Indians were blamed but later evidence indicated it may have been the work of an outlaw gang.

Sixteen million dollars worth of gold had been panned and sluiced from Napias Creek and by 1940 the gold was gone. The population soon dropped to less than 100 persons. In 1944, it dropped to two and later to zero.

Winter snow, heavy winds and fires have taken their toll of many of the buildings at Leesburg and today only about a dozen log structures line the once busy main street.

Disappointed that we couldn't get a close look at Leesburg after making the long, hard journey back into the townsite, we decided to go the additional three miles to the once-large Chinese settlement of Moose Creek where reportedly 300 Chinese workers were killed in a landslide in the early 1800's.

We found only a couple of scattered cabins at Moose Creek and a few hours of searching turned up only a few



Chinese coins, some cooking implements, an opium box and pieces of broken pottery.

Returning through Leesburg and back to the fork of Moccasin and Napias Creeks, we followed the road signs along Panther Creek to Cobalt — a modern-day ghost town.

COBALT

Cobalt, once called Blackbird, remains in excellent condition today — with its all-white company homes, stores, school

house, three-story recreation hall and other buildings — just as it did in 1959 when the mine closed.

Once there were 450 company employees and a population of more than 2,000 persons at Cobalt.

The Blackbird Lode, with its rich deposits of gold, was responsible for the birth and subsequent death of the town.

Located two miles up Panther Creek and another four miles up Blackbird Creek is the site of the old town of Blackbird. A few log cabins still squat beside the stream.

Gold was discovered in the area in 1893 but the big boom didn't come until 1939 when a government contract was awarded. The new town of Cobalt was built and the area prospered until 1959 when the government contract expired and the mine closed.

We had heard that Cobalt was com-

A unique piece of architecture is this unfinished hotel at Yellow Jacket. The hotel, built over the existing contour of the land, is three stories high at the front and five stories at the rear. Construction of the building began in 1932 with the resumption of mining operations at Yellow Jacket. However, before the hotel was completed, the mine closed down and by 1942 the Yellow Jacket had joined the long list of Idaho ghost towns.



pletely deserted, but found five or six houses being occupied by families and, on the particular day of our visit, a Cobalt reunion was being held at a campground and picnic area a couple of miles down the road. The reunion gave us an opportunity to talk with some of the ex-residents and old-time miners of the Blackbird and Cobalt area and learn first-hand about some of the history and the way of life in the old mining communities.

YELLOW JACKET

The final stop on our vacation trek was to be at the most remote of all the ghost towns — Yellow Jacket. Little is known about Yellow Jacket and few people visit the townsite. After making the journey over some of the roughest roads we ever encountered it was easy to see why.

Seven miles from the Blackbird Road junction a narrow road branches to the right and travels generally west for 15 miles to the Yellow Jacket Ranger Station. Another three miles beyond lies the old mill, hotel and five log cabins marking the spot where a thriving community once stood.

Placer gold was found in Yellow Jacket Creek in 1869. It's said that many Leesburg miners moved into stake claims and later that year the mother lode was discovered on a hill north of the camp. In 1893, materials for a 30-stamp mill were packed in by mule train.

During the boom years of 1890 to 1900, the population of Yellow Jacket was estimated at 200. After 1900, mining dropped off, becoming sporadic in the twenties. In 1932, mining resumed and prospects looked so good that construction of a large hotel got underway.

But the hotel was never completed because shortly thereafter prospects began to falter as the veins started to give out and in 1942 the mining operation ceased entirely.

Today, the hotel still stands, a curious piece of architecture with a three-story front and five-story back.

Most of the land in and around Yellow Jacket was purchased by a private party at auction a little more than a year ago and the "private property" and "no trespassing" signs posted on the hotel and most of the buildings seemingly reflect the owner's attitude toward outsiders.

As I started shooting pictures of the

unique hotel and half a dozen cabins sitting along the hillside against a rich green backdrop of pine trees it suddenly dawned on me that I was nearing the end of my last roll of film—it was time to return home to Blackfoot.

In years to come, as my family looks back on our ghost town venture, we will undoubtedly remember some of the disillusionment, hardships and unexpected restrictions that at the time seemed to

dampen the spirit of our vacation trip.

Nevertheless, if we had it to do over again, I'm sure we'd be on our way to Lucky Boy, Custer, Leesburg and those other colorful names out of the past. After all, they still remain an important part of our history and our heritage, and with civilization gradually encompassing the back country the old ghost towns may not be around for future generations to see. □

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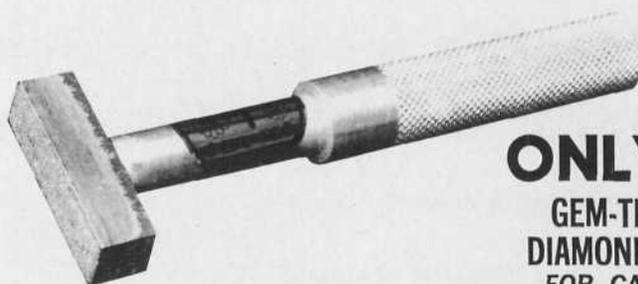
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Tecopa, California

OST MINE BUFFS may still have a chance to find Pegleg Smith's lost gold deposit. Recently discovered information indicates that it could be located in Southern Nevada instead of the Borrego Badlands of California.

Alfred G. Humphreys, a graduate student in the field of history at Brigham Young University, completed his M.A. thesis in 1968. His subject was *The Expeditions, Trading and Life of Thomas L. [Pegleg] Smith*. According to Humphrey's findings, Smith was on the north bank of the Colorado River, near Overton, Nevada when his famed black-coated gold nuggets were found.

Humphreys obtained this information from old California newspapers and official historical documents. One of his main sources, the February 1861 edition of *Hutchings' California Magazine*, contains a personal interview with Pegleg Smith. This interview provides the following information:

Early in the spring of 1827, Pegleg Smith was working along the Colorado River as a trapper with a party headed by Ewing Young. They camped for a time near the Mohave villages that were in the area at that time.

Soon the white mens' lust for the Indian squaws caused big trouble with the Mohave braves, and the trappers were attacked and had to fight their way free. However, the infuriated braves continued to attack them as they made their way through the Black Mountains.

At last, they fought the Indians off long enough to get a few hours ahead of them. They paused for some rest and a conference. Pegleg thought that they might surprise attack the Mohaves by returning that night and ambushing them as they slept. The trappers decided to follow this plan.

After dark they stealthily retraced their steps and caught the braves completely off guard. They killed nearly all of them in a short, lop-sided battle. The few who managed to escape never bothered them again.

From there the trappers trekked on to the juncture where the Virgin River empties into the Colorado. At the end of the second day, one of the trappers, a man called Dutch George, came back to camp with a pocketful of strange, heavy pebbles.

At that time, the only known mine operating in the Southwest was the Santa

Rita copper mine in New Mexico. Pegleg had visited that mine in 1825, and he immediately noticed that the metallic pebbles that Dutch George had picked up looked about the same as the copper he'd seen coming out of the Santa Rita Mine. He automatically declared them to be copper, and all the rest of the trappers mistakenly accepted his verdict. Nobody thought there could be much gold in the Southwest during those pre-goldrush days.

Pegleg Gold in Nevada

by RICHARD TAYLOR

According to his personal interview in *Hutchings' California Magazine*, Pegleg goes on to say that he took the "copper" pebbles and made bullets out of them. The fighting with the Mohaves had nearly depleted the trappers' supply of lead, so they were glad to get this new source of bullet material. Smith and a few others left the main group and went with Dutch George to gather more of the "copper" for making bullets.

In his book, *Golden Mirages*, Philip A. Bailey says that the trappers' camp was on the north bank of the Colorado River, about two miles east of where the Virgin

River meets the Colorado.

Twenty-seven years later, in 1854, Pegleg's expedition of over 60 men left Los Angeles to try to relocate the strike. An article describing this expedition was published on April 22, 1854 in the *Los Angeles Star*, and four days later, the *Alta California* of San Francisco reprinted it. One very interesting detail in this article is the fact that it specifically states that Pegleg and his party of prospectors were heading for the Virgin River with three months supplies.

They planned to follow the Old Spanish Trail, but bickering and distrust soon broke up the expedition. However, Pegleg managed to keep nine men and continue on, though somewhat disgusted.

They made it to an area near the Virgin River, but evidently had no success. They met J.T. Caine when they were returning on the Spanish Trail on June 1, 1854. A day later they joined John C. Fremont and his party at Kingstone Spring.

Fremont's journal describes this meeting thus: "While encamped on this spot, we met a party of gold seekers from Los Angeles. They had been down on the Colorado looking for gold, but were unsuccessful. They were under the command of a man with one leg, known as Pegleg Smith, a celebrated mountaineer. He is a well-weathered chap and tells some improbable tales. They are on their way back and will travel with us; they comprise ten men, all mounted on mules."

On June 9th this party reached San Bernardino and dispersed. Pegleg never looked for the gold again, but talked about it frequently until his death in 1866.

The possibility that Pegleg Smith's lost gold deposit is somewhere on the Virgin River is well founded. There is gold throughout the countryside around that area. During the six years between 1892 and 1898, over \$12 million was produced in the White Hills mining area just to the south. Old gold mining operations pepper the hills to the north and to the east, and the rich King Tut placer deposits are located just south of Temple Bar.

So, put on your hiking boots, grab your canteen and don't despair. Pegleg Smith's lost gold may still await you somewhere near the juncture of the Colorado and Virgin Rivers. □



Ben Stirdivant, of Hemet, winner of the first annual Pegleg Mine Trek and Liars Contest held near Borrego Springs last April 1, is favored again this year, mainly because he's the first contestant. His yarn about a brisk business in used mine shafts was a classic. Photo by Ernie Cowan.

Second Pegleg Mine Trek and Liars Contest--April 3

COUNTRIES ARE rolling in fast for the second annual revival of the old Pegleg Mine Trek and Liars Contest to be held Saturday night, April 3 at the Pegleg Monument near Borrego Springs, California. Last year's winner, a reformed hardrock miner turned shoe salesman from Hemet, California, Ben Stirdivant, is the first entrant and promises to out-lie last year's virtuoso performance in which he cleverly wove all the names of the judges and contest officials in a tale of used mine shafts for sale.

This year's contest is headed by two veterans of prevarication, Bud Getty of Borrego Valley and Bill Jennings of Deep Canyon, both of whom promise the event will start on time—whenever that is—and there will be no favoritism nor male chauvinism involved. One mystery contestant rumored this year is "Seldom Seen" Sally, whose identity will remain a secret, especially after she tells her

tale, the co-chairmen insist.

Judges will not be announced until the contest begins, shortly after dusk, mainly because nobody knows who they are, Getty and Jennings admitted. There is no entry fee or admission charge, other than the deposit of 10 preferably imported rocks on the sprawling monument, which dates to 1948 when the late Harry Oliver and other desert characters began the now traditional classic event. Advance entries may be made by writing *Desert Magazine*, Box 1318, Palm Desert, California 92260, or the committee's third member, Executive Director Dan Boonstra, Borrego Springs, Calif. 92004.

The monument is located five miles northeast of Christmas Circle at Borrego Springs, on Salton Seaway. Visitors may camp in several Anza Borrego Desert State Park campgrounds nearby. Camp chairs and a stick of wood for the fire are recommended in addition to the 10 rocks for the monument. □

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SANTA ROSALIA An Interesting Place in History

DURING THE last few years of the 19th Century, the mines at Santa Rosalia in Baja California were producing good quantities of copper. In 1898, it was the world's ninth largest producer, with 9,000 tons, and by 1906, its production had risen to 12,000 tons.

The smelters had a prodigious appetite for fuel. There was no fuel in Baja California, so it was imported from other parts of the world. The most efficient fuel for the furnaces was coke, which was made from coal. Coal in its natural state was used by the furnace that produced steam for power in the mill. The two consumed large quantities.

The best source of coal at that time was Europe, with the English mines producing the largest percentage. All of this amounted to a steady stream of ships from European ports, plying their way around the Horn to Santa Rosalia. These were mostly four-masted sailing ships, with a large number of them belonging to German shipping interests. After they unloaded their cargo, they went north to Oregon for a load of lumber, or southward to Chile for nitrates.

Surprisingly, Santa Rosalia became one of the most important seaports in the world. At the same time, it was probably one of the most hated. It had a very poor

port, and virtually no unloading facilities. The captains feared the open anchorage while waiting to unload, and the seamen disliked the job of manually unloading the boat as there were no stevedores at the port. During off-hours, there was no good place in the small mining town for the crews to relax. The surrounding desert was inhospitable, and no sailor in his right mind stepped out of town. This added up to a disagreeable situation, especially after a voyage lasting from 100 to 150 days.

In the early part of 1914, an interesting series of events began to take place. A large number of German ships set sail, at intervals, to make their way to Santa Rosalia. This continued during the spring and summer. When World War I erupted in August, at least 11 German ships were in Santa Rosalia, or were on their way. Immediately, the ship owners sent messages to Santa Rosalia telling their captains to anchor at the port, and await the end of the war, which was expected in less than a year.

As each ship arrived, and unloaded, it was towed out to anchor outside the man-made port. The crew members of these ships were from many countries. Those that were not German got paid off as soon as they could and signed on as seamen on ships that were leaving the port. The German crews settled down to caring for the ships, or awaiting a German warship to take them home for military service. Many were naval officers on leave to the merchant ships.

The German light cruiser *Leipzig* entered the Gulf shortly after the war began, looking for coal for its boilers. The marooned seamen heard of her presence, but she never stopped at Santa Rosalia and slipped southward, eluding two Allied warships that were trailing her.

By the time winter set in, it was obvious that the war would not be over as expected, and the German seaman tried to get paid off. This was not easy as most captains did not carry that much cash. If he did get paid off, where could he go? No neutral or Allied ship really wished to take them unless the ship was acutely short-handed. If they were on a ship that called at an Allied port, they were promptly interned for the duration of the war.

Life on a boat anchored outside of the port of Santa Rosalia was not good. The



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seas were usually calm, but with swells and the summer hot and humid. Late summer brought near-hurricane storms that endangered the ships. Most of the ships had wooden superstructures. This called for maintenance. Paint and repair parts were in short supply. There was little likelihood that the seamen would get paid for their work. Food was not scarce (this is where most of the captain's cash went), but Mexican food did not appeal to the German seamen.

Escape to the United States was in the mind of all of them. There was no easy way to do this. Traveling across the waterless peninsula was a foolhardy thing to try. There were no towns on the coast to the north, and virtually none of any size to the south, except La Paz, 400 miles away.

The only reasonable way was to get on a Mexican boat to Guaymas, then take the train to Nogales and slip across the border into Arizona. As very few seamen were paid off, desertions were common. Getting passage across the Gulf was difficult, and stowing away, or other ingenious ideas were needed to make the passage. After arrival in Guaymas, with no money, the seamen were still in trouble. Many took menial work on Mexican farms and in industry. Some signed on Mexican boats plying the Gulf. Many even returned to their ships and were welcomed back by their short-handed captains.

Desertion across or into the peninsula was tried by some. Most soon returned, some were never heard of again. There is one case of a German seaman actually escaping and making it to San Ignacio, 50 miles to the west. Frank Fisher was a donkey engine operator and mechanic on one of the ships. The engine was used to power the winches for loading and unloading cargo. He decided that if he could get away, his ability as a mechanic would be of use to some Mexican, and thus at least he would have a job.

He started his trip one night after slipping away from the boat. Quickly he found that he would not get far without food and water, and slipped back into town. He sold some personal things and purchased supplies he could carry. The trip took him a week, but it was a week of suffering. He went in early October; the days were hot and the nights were cold. A look down into the palm-filled valley

that holds San Ignacio is a thrill for any traveler, but certainly no one before or since experienced the thrill of Frank Fisher when he looked down into the coolness of San Ignacio.

We had the pleasure of meeting Frank in 1956. He was in charge of a road crew working on one of the terribly steep grades between San Ignacio and Santa Rosalia. He spoke excellent English, and as part of the visit, he asked that we bring him American magazines.

We returned the next year and delivered the magazines to his home in San Ignacio. He was a happy man, living with his Mexican wife, a family of about eight grown children, and 30 grandchildren. He was one of the local mechanics and seldom strayed from home to do road work where we first met him. We feel our experiences in Baja California have been greatly enriched by our acquaintance with this interesting man.

By the end of the war, most of the interned ships were in deplorable condition. Some had been wrecked. The owners had little or no capital, and could not repair them. All of the ships had a thick crust of barnacles, and sailing them would be difficult. Even if the ships were in order, where would they get crews? The only answer was to dispose of the ships. Some were liable to seizure by the reparations policy of the Allies. Those ships that the United States took were paid for (an old American custom), rather than seized, but few were put to use.

By the end of the war, the Panama Canal was open, and steamships were fast becoming the best method of shipping. No one really wanted the old sailing ships. Some were towed away, had their superstructure removed, and were made into lumber barges. A few actually sailed away, but most of them were scrapped. The long stay at Santa Rosalia was a waste of time for all.

Our readers may wonder why we tell a sea story, instead of one on rocks. Immediately following the first column on Santa Rosalia, we were loaned a book that tells the full story. *To Santa Rosalia Further and Back*, by Harold D. Huycke, Jr., fascinatingly and lucidly tells the whole story. We apologize for not writing about rocks, but feel the story is most interesting, and hope you will, too. It is a tiny part of the history of Baja California, an intriguing part of the world. □

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WORLD OF THE SAGUAROS

Continued from Page 19

ground, it is eaten by ground squirrels, packrats, coyotes. Seeds loosened from the disintegrating pulp are enjoyed by desert rodents, quail, brown towhees. Harvester ants lug them away to their underground larders. Testing these bustling insects, Zoologists W.F. Steenberg and Charles Lowe broadcast 1,000 seeds in a rocks area. In 70 minutes the ants had harvested all of them. In the face of such natural odds, the 185 seedlings that finally appeared out of 64,000 seeds broadcast in another test, probably represent a fair figure for seed-to-seedling progress.

Such a little wisp of green stuff is bound to have a very tough time. The luckiest are those from seeds which happen to land around an outcrop of rocks where some moisture might be trapped, or under a "nurse" tree such as the palo verde, which provides shade for the newcomer and helps conceal it from certain rodent characters. The cactus mouse, antelope squirrels, rabbits and woodrats all eat seedlings. However, biologists R.M. Turner, S.M. Alcorn and George Olin, conducting field tests to assess rodent damage as a possible cause of the saguaro's failure to repopulate in certain areas, came up with a big question mark. In all honesty it had to be said that rabbits and various rodents have probably always dined on saguaro seedlings without upsetting the status quo, and if the damage is more extensive now, it is because man has pushed his cattle into the desert lands that cannot support grazing.

Overgrazing in a saguaro area, as biologists W.A. Niering, R.H. Whittaker and C.H. Lowe's fine ecological study showed, is fatal to the plant's repopulation there. The land is eaten bare of grass and shrubs, the seedlings themselves chomped down and trampled on. The whole face of the desert changes radically with the smaller widespread cacti — prickly pear, cholla and the like — appearing in vast numbers. When this occurs, the number of resident cactus-eating packrats increases. More jackrabbits appear and since their normal food has been gobbled up by cattle, they eat the palo verde and other nurse plants, and the young saguaros, no long-

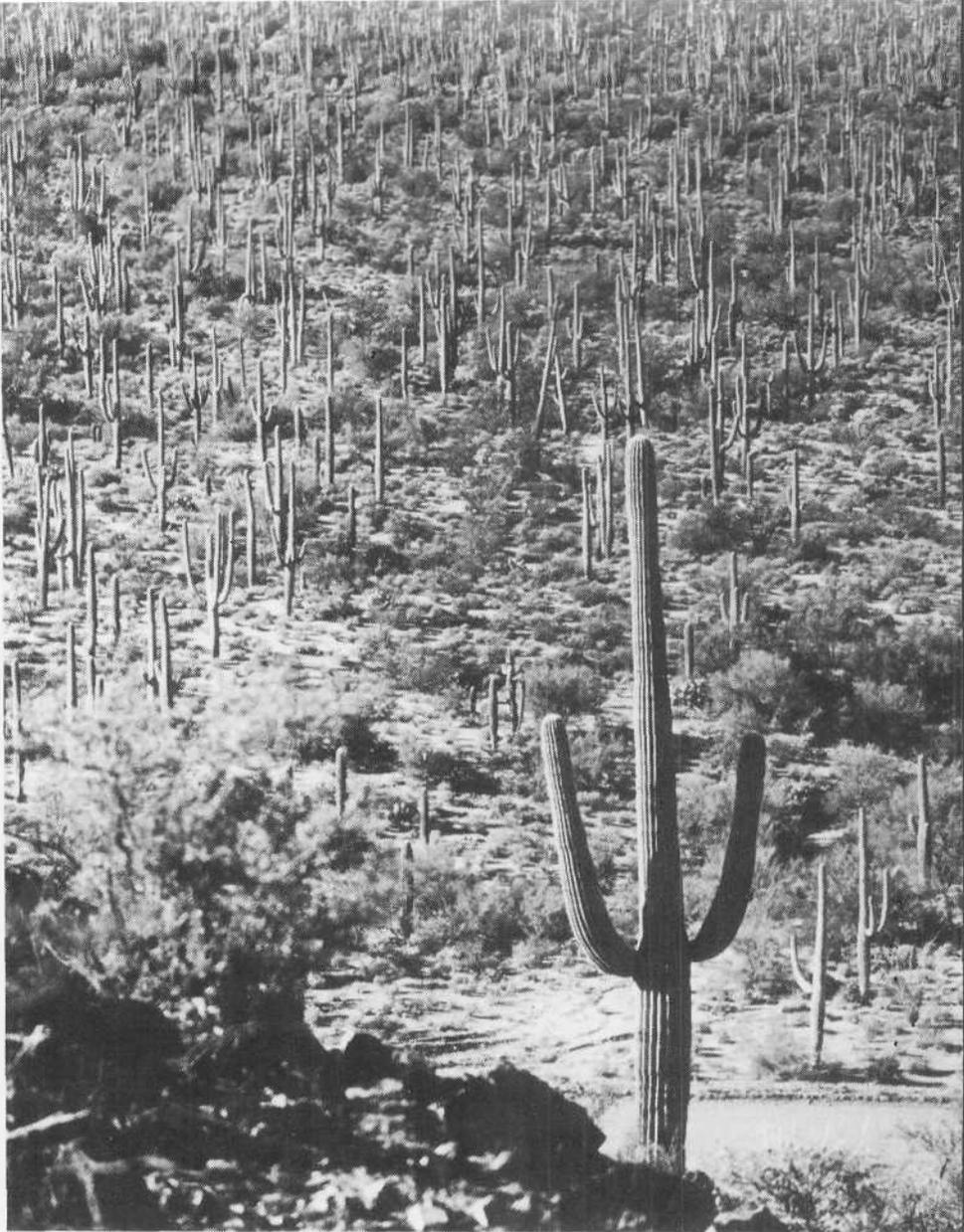


Photo by James Tallon

er sheltered, die. The result of overgrazing and its concurrent environmental changes can only be the end of the saguaro community. This trend cannot be reversed, or if so, only at a very slow rate and only if cattle are kept out.

Obviously the loss of saguaros is very bad news for the birds and animals depending on them for food and drink. So, too, for those who have apartments in the big cacti. Gila woodpeckers, using their chisel bills and trip-hammer head action, make holes to live in themselves and for nurseries for their young. The big cactus simply walls off such a hole on the inside with a corky material and all is well. Any nest built therein is surrounded by water-cooled tissue and is quite comfortable. These bird carpenters make a new hole each season, and for that matter extra ones they don't use. As can be expected, competition for these second-hand dwellings is keen among

other birds. Elf, screech and pigmy owls dwell in comfort in saguaro holes. Bendire's thrasher, the cactus wren, Wied's crested flycatcher, the western kingbird, purple martin, bluebird, house finch, English sparrow, lark bunting and starlings also choose the saguaro housing complex. Many of these could not stand the rigors of desert living without saguaro help. Bats live in saguaros, cactus mice, packrats. Bees and wasps establish colonies in them. Lizards take up housekeeping in the holes, and some members of the hawk tribe nest in its arms.

Quite a close-knit community, this wonderful world of the saguaro, with the giant cacti, birds, mammals, insects, lizards all interdependent and under normal circumstances, flourishing together.

The catch, now, is to keep things that way. □

Letters to the Editor

Letters requesting answers must
include stamped self-addressed envelope

Purple Glass Reports . . .

In your February, 1976 issue, on page 47, Mr. A. H. Buchman of Los Angeles makes inquiry regarding glass that turns purple in the sun.

Many left glass on the roofs of Death Valley buildings, thinking that the intense heat would turn them purple. The heat may have facilitated the chemical synthesis that brings the desired result, but it is ultra-violet light that is the chief agent.

Early glass had a greenish cast and this was overcome by the addition of manganese dioxide. The ultra-violet light acting upon the manganese plus gamma rays are the chief factors in turning the glass purple. Glass made without the manganese filler is unaffected by sunlight or gamma rays.

The gamma ray factor I learned from a M.D. Radiologist who noticed that one of his tubes turned purple, so he gathered up some old glass and put it under the x-ray lens each morning during the warming-up process. The result—purple glass.

This confirms the fact that glass found underground is purple without exposure to any light, and I recall that some old fruit jars in the basement of my father's house turned purple without sunlight. Gamma rays are very penetrating. This is why x-ray technicians wear leaded aprons or observe their patients behind leaded glass. The atmosphere filters out the shorter ultra-violet rays and the glass found on mountaintops is a deeper shade than that found in Death Valley as the air acts as a filter.

I trust the foregoing sheds some light on the subject.

WILLIAM C. SANFORD,
Reno, Nevada.

Suncolored glass, also known as sun purpled glass, turned glass, amethystine glass, or desert glass, is old glass that was made clear, and has since turned purple by the sun.

Generally speaking, all clear glass, except flint or lead glass, produced before 1920, will turn purple or amethyst when exposed to the sun from two to ten years. This is due to the use of manganese as a decolorizing agent in the manufacture of glass.

During the modernizing of glass factories, from the kiln method to the continuous tank method of glass manufacturing, about 1915 to

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.

1925, manganese was found to be too unstable as a neutralizing agent. Some glass made with selenium will turn golden in the sun. More acceptable formulas with soda ash and lime were developed.

A few companies continued to use manganese in reduced amounts in their good quality crystal until 1940, so their glass will assume a lighter purple tint when exposed to the sun. New glass will not change appreciably in color.

PURPLE GLASS FARM,
Anaheim, California.

Editor's Note: We wish to thank the many, many readers who sent in similar letters in response to Mr. Buchman's query.

Campers Beware . . .

The article on rock roses by Mary Frances Strong in the January 1976 issue was completely accurate in its description and instructions.

A word of caution, however, for those who plan to explore this area. The ground on each side of the road in the camping area is deceptive in appearing to be quite firm. You can be up to your axles in short order if you are towing a trailer or have a two-wheel-drive truck and camper rig.

Y. ELBERT CHEYNO,
Sunland, California.

Captions Criss-crossed . . .

In your February issue, on page 26, you have a picture of a man whom you denote as being "Wolf Robe." This is incorrect. On page 27, the bottom picture, you have this man denoted as being "Horse Capture." This man on page 27 is actually "Wolf Robe" of the Cheyenne nation. I assume the man on page 26 is "Horse Capture."

JAN CRAIN,
Temple City, California.

Editor's Note: Reader Crain is absolutely correct.

APRIL 10 & 11, Baldwin Park Mineral & Lapidary Club's "American Heritage: Old Rocks to Modern Gems," Morgan Park Community Center, Corner Baldwin Park Blvd., and Ramona, Baldwin, Park, Calif. Dealers. Show Chairman: Ralph Smith, Box 96, Baldwin Park, Calif. 91706.

APRIL 10 & 11, 22nd annual Fast Camel Cruise will be held north of Desert Center, Calif., near Red Cloud Mine. 4WD vehicle owners may write Sareea Al Jamel 4WD Club of Indio, P.O. Box 526, Indio, Calif., 92201 for brochure.

APRIL 10 & 11, California Barbed Wire Collectors Association's Antique Barbed Wire and Collectable Show at the Oakhurst Community Center, Road 425-B, Oakhurst, Calif. Barbed wire, fencing tools, bottles, etc. Free.

APRIL 10 & 11, Paradise Gem & Mineral Club's 22nd annual show, Veterans Memorial Hall, Skyway at Elliott Road, Paradise, Calif.

APRIL 16-18, Pushmataha Galleries, Inc. grand opening. Fine Western and contemporary art. AICA members will be in attendance in addition to regular featured artists. Demonstrations. Brewer Rd., Sedona, Arizona.

EASTER WEEKEND Jeep Safari, sponsored by the Moab Chamber of Commerce, Utah. 4WD vehicles only. Write to the Moab Chamber for more details on this exciting and beautiful event.

APRIL 24 & 25, South Bay Lapidary and Mineral Society's 27th annual Gem and Mineral Show, Torrance Recreation Center, 3341 Torrance Blvd., Torrance, Calif. Free admission, free parking. Chairman: Gilbert Bynon, 21905 Ladeene Ave., Torrance, Calif. 90503.

APRIL 24 & 25, Silvery Colorado River Rock Club's 9th Annual Gemboree, Hancock Rd., Holiday Shores, Bullhead City, AZ. Free admission and parking. Dealers, displays, field trips, exhibitors.

APRIL 24 & 25, Santa Barbara Mineral & Gem Society's 18th Annual Show, Earl Warren Showgrounds, Santa Barbara, Calif. Demonstrations. Dealer space filled.

APRIL 24 & 25, "Desert Gem Roundup of Antelope Valley" Annual Spring Show, co-sponsored by the A. V. and Palmdale Gem and Mineral Clubs, to be held in the Fair Center Hall, A.V. Fairgrounds, corner of Division and "I" Sts., Lancaster, Calif. Choice of Field Trips. Dealer space closed. Free admission and parking. Door prizes. Minimum charge for ample camping on the grounds. There should be an abundance of wildflowers on display in the area through April.

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