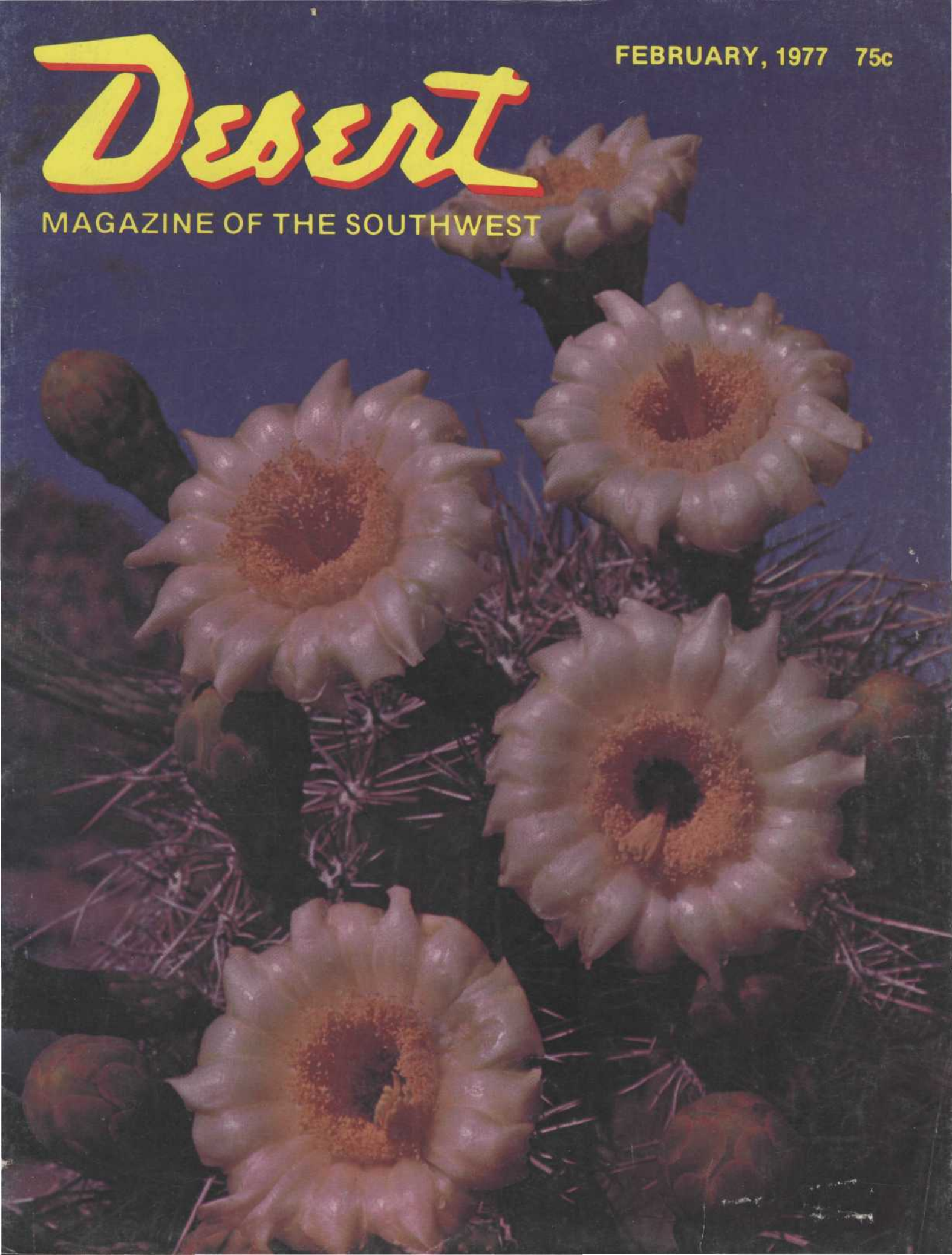
Desert

MAGAZINE OF THE SOUTHWEST

FEBRUARY, 1977 75c



WILLIAM and JOY KNYVETT
Co-Publishers/Editors

GEORGE BRAGA, Art Director
MARY FRANCES STRONG, Field Trip Editor
F. A. BARNES, Utah Associate Editor
GLENN VARGAS, Lapidary Editor
K. L. BOYNTON, Naturalist
MARVEL BARRETT, Circulation Manager

Color Separations by
Henry Color Service

Lithographed by
Wolfer Printing Company, Inc.

Available in Microfilm by
Xerox University Microfilms

Desert MAGAZINE

Volume 40, Number 2 FEBRUARY 1977

CONTENTS

THE COVER:
Portrait of the Saguaro Blossom, Arizona. From the tip of the giant cactus (*carnegiea gigantea*) come these rich flowers, the state flower of Arizona. Photo by Josef Muench, Santa Barbara, California.

FEATURES

DEPARTMENTS

EDITORIAL AND CIRCULATION OFFICES: 74-425 Highway 111, Palm Desert, California 92260. Telephone Area Code 714 346-8144. NATIONAL ADVERTISING OFFICES: JE Publishers' Representative, 8732 Sunset Blvd., Los Angeles, California 90069. Telephone Area Code 213 659-3810. Listed in Standard Rate and Data. SUBSCRIPTION RATES: United States, Canada and Mexico; 1 year, $6.00; 2 years, $11.00; 3 years, $16.00. Other foreign subscribers add $1.00 U. S. currency for each year. See Subscription Order Form in this issue. Allow five weeks for change of address and send both new and old addresses with zip codes. DESERT Magazine is published monthly. Second class postage paid at Palm Desert, California and at additional mailing offices under Act of March 3, 1879.

A Peek in the Publisher's Poke

IT LOOKS like good news for wildflower enthusiasts this year. With the additional rain in the desert regions, there just may be a beautiful showing. We were fortunate to catch the Desert Lilies in full bloom last April while passing the Desert Lily Preserve north of Desert Center, California. That sight, alone, is worth a special trip.

The February issue brings you a variety of adventures. Ruth Armstrong has a 200-mile circle trip out of Albuquerque, New Mexico which literally spans man's history from stone axes to atomic bombs. Bill Jennings takes us to the popular off-road camping, hiking and fishing mecca of Picacho State Recreation Area, 25 miles northwest of Yuma, Arizona and Mary Frances Strong winds up with some nifty wood specimens while visiting Sodaville, Nevada.

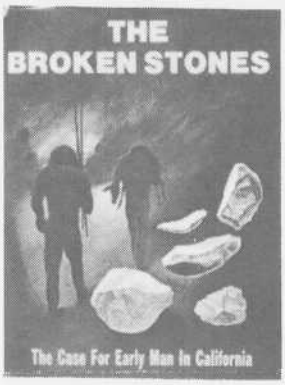
In 1951, Randall Henderson had an article in *Desert* which described Mexico's Pinacate volcanic field as almost unknown and accessible only by four-wheel-drive or on foot. Author Carl Allen brings us up to date on this wild and desolate territory which has recently been made a "Parque Natural Del Pinacate" by the Mexican government, and the new improved roads now make it accessible to the ordinary traveler.

Dick Bloomquist travels to Pushawalla Canyon in his California Oases series; Glenn and Martha Vargas relate an incident on their trip to Brazil last summer and Osco Cole takes us for a ride along a 100-year-old freight trail near Death Valley. Top it all off with Lucile Weight's informative material on the Squawbush, plus a most interesting rendition of the Desert Tortoise by Gloria Nowak, and we hope *Desert* has covered a few bases for everyone this month.

Photo by David Muench

Books for Desert Readers

All books reviews are available through the Desert Magazine Book Shop. Please add 50c per total order for handling and California residents must include 6% sales tax.



THE BROKEN STONES
The Case For Early Man In California

By Herbert L. Minshall

Richard F. Pourade, in his Foreword, gives this description of *Broken Stones:*

"The Broken Stones peels back some of the story of man in America, back beyond the longest racial memory.

In canyons almost in the heart of the City of San Diego there have been found broken stones that bear the marks of having been worked by unknown hands far in the distant past.

And in the same region, along the coastline facing the Pacific, and in the dry deserts to the east, bones of long-dead humans are yielding tentative dates as far back as 48,000 years.

But beyond the dates being attributed to the bones lie the broken stones.

Are they 75,000 years old? Or 100,000? Or even more?

Were they surely shaped by man? As tools and weapons? Yes, says a new breed of anthropologists, both amateur and academic, who are shaking the foundations of a scholarly discipline.

They are not really amateurs but avocationists. Their presence in anthropology is not new. Some of the great archaeological discoveries, for example, have been made by them, as merchants, lawyers, physicians, engravers.

This book is the product of an avocationist, an artist by training, who pulls together all that has been learned or suggested by other amateurs as well as experts, including his own discoveries, in the region with which he has made himself familiar.

To them the broken stones are beginning to speak—and they speak of the presence of man on the American Continent many, many thousands of years before he shaped the first bow and arrow.

Not all of those who work in anthropology are ready to accept all the findings nor all the conclusions. Not yet, anyway. Sorrow often has been the lot of those who moved too fast.

But as science develops and tests new dating techniques, the challenges and the questions grow weaker.

The Broken Stones tell—if the stones

speak the truth—how man could have arrived in America from Asia long before the last ice sheets cut off passage down the continent for hundreds of centuries.

And that was a long time ago."

Large format, beautifully illustrated with four-color photos, sketches and paintings, 166 pages, bibliography and index. Another Copley publication for lovers of the West, historians and collectors of fine books. Hardcover, $16.50.

INDIAN BASKET WEAVING
How To Weave Pomo, Yurok, Pima and Navajo Baskets

By Sandra Corrie Newman

Sandra Corrie Newman did not intend for this book to be a scientific report, although it contains aspects of Indian basketmaking not heretofore described. Rather, it unfolds for us her personal discovery, through long learning sessions, of the byways of traditional basketmaking of four different Indian tribes. Besides explicit information on gathering and preparation of natural materials and weaving techniques, she brings out the meaning of the craft to the partakers of these traditions. In the process she captures the spirit of a fleeting moment in time just when the old traditions were about extinct and suddenly there comes renewed interest in them by both Indian and whites.

The Indians are motivated by a sense of alarm that their native culture is about to fade away with the passing of the older generations; the whites are searching about for overlooked values missing from their own culture.

A previous movement of craft interest took place in the early 1900s spurred on by magazine articles, books and hobby clubs. Much attention was focused on macrame work and basketmaking, in connection with which Indian basketry was recognized, praised and to some extent copied. Although this movement generated great enthusiasm, the earnest hobbyists met their limits when they found that an investment of time was needed to perfect the appropriate skills, and that their works did not have any necessary utility as in the old days.

The author traveled through Arizona, New Mexico, Utah and California, sitting on the earth, in modern kitchens and in meeting houses, weaving many kinds of baskets. For each of the tribes represented she gives the Habitat, History, Uses for the weaving, Materials, Gathering: Time and Place, Method of Gathering and Preparing Materials, and Making the Baskets which includes the tools, how to begin the basket, how to add new materials, and the finishing off process. Ample illustrations make instructions easy to follow.

Paperback, 91 pages, $4.95.

A Nevada Field Trip

Unexpected Sodaville

by MARY FRANCES STRONG

photos by Jerry Strong

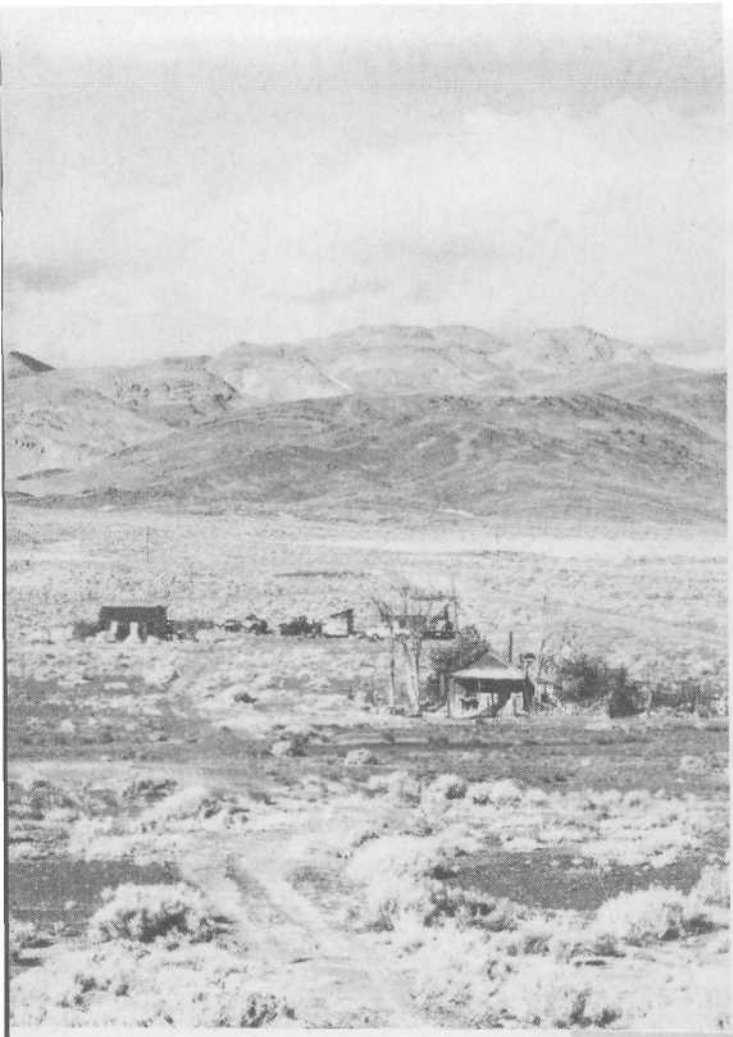
The old Sodaville jail was not fancy. Just a hole dug into a hill north of town.

OUR STOP AT Sodaville, Nevada, had not been planned. We were heading for points north when gusty winds began to jolt us around and it appeared as if we might have to seek cover. "Sodaville is just ahead," Jerry announced. "We will pull over there and try to park behind one of the old buildings."

Several hours passed and the wind had not relented. It was obvious we wouldn't be traveling for awhile. Jerry had noticed a couple of pickups parked at the mill and decided to walk over to see if it would be all right to stay overnight. It was, and as it turned out, the wind had introduced us to an interesting ghost town and a deposit of petrified wood!

The following morning we met John Sinkey — caretaker and longtime resident. We learned the mill was still operative and specialized in custom runs. John also told us the Nevada Tungsten Corporation had sold the mill and townsite to Charles David, President of American Mining Company. The latter had plans for future development.

Located in a broad, north-south trending, high desert valley, Soda



Left: Sodaville is only a shadow of the former rough-tough railroad town that never slept. A few old houses dot the townsite and the still operative mill [center left] specializes in custom runs. Below: Built in 1882, this old mill processed ores from the El Diablo Silver Mine at Candelaria—20 miles southwest of Sodaville. The beautiful, mortarless rock work had stood well the ravages of time and elements.

Springs (as the area was first called) had a treasure highly sought after in arid regions — abundant water. It is not surprizing that "Sodaville" eventually played a significant role in Nevada's history and was once the most important town between Reno and Tonopah — 1900 to 1905.

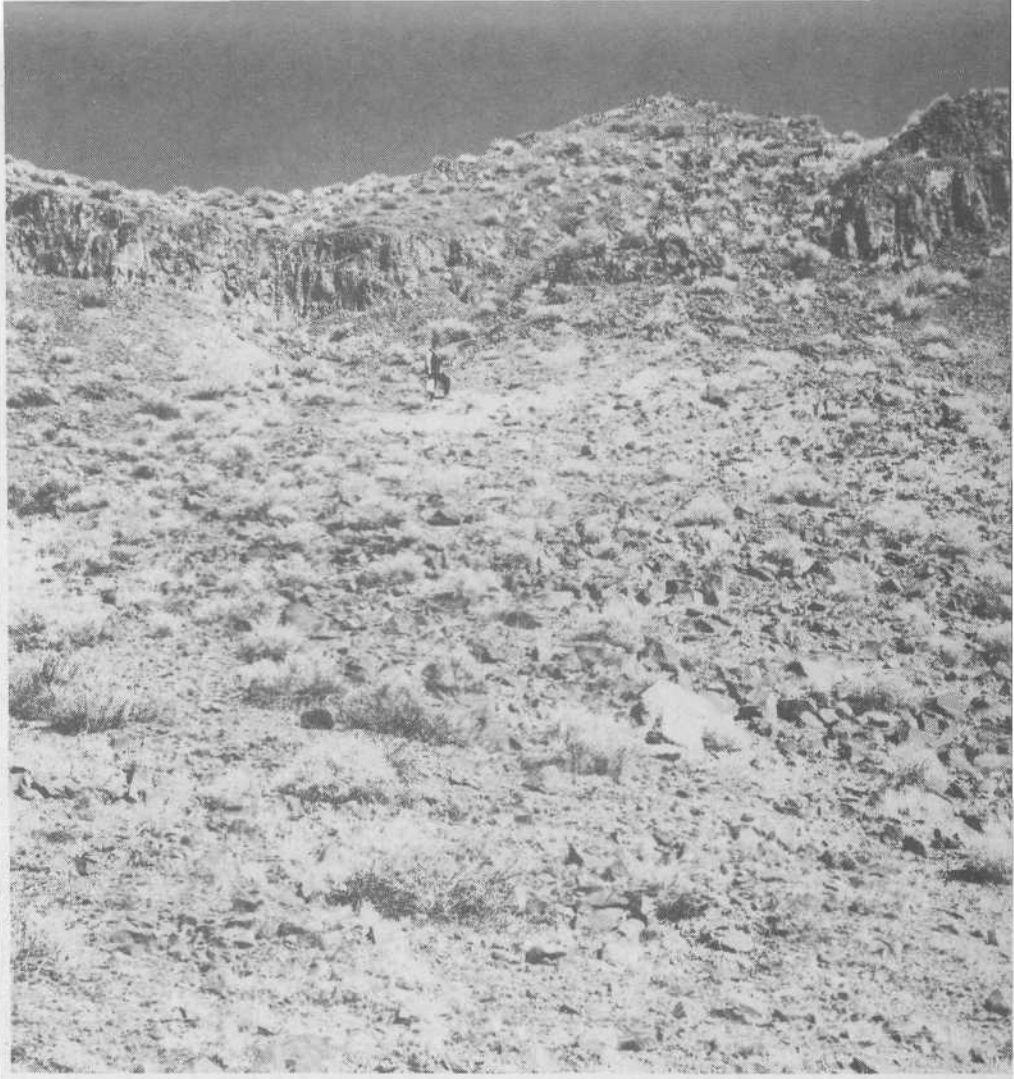
Soda Springs was well known in the early 70s, due to its mineral springs — both hot and cold — which were thought to have curative powers. People came by wagon from considerable distances to soak their aching bones in the waters. As a result, a little resort developed. When the Carson & Colorado Railroad was completed from Mound House, Nevada, to Keeler, California in 1881, Sodaville received station status. A year later it sported a post office, stores and saloons.

During 1882, the Mt. Diablo Mining Company built a silver mill at Sodaville. The ores were shipped from Candelaria, via the Carson & Colorado, to the Sodaville mill for processing. A second industry now flourished and the little resort became a mining town and shipping center. The great silver strike at Tonopah in 1900 catapaulted Sodaville into prominence as the closest railhead to the new bonanza.

Almost overnight, Sodaville became a town that never slept. There was a frenzy of activity around the clock. Trains rolled into Sodaville loaded with tons of supplies for Tonopah, as well as hundreds of prospectors, tradesmen, saloon keepers, prostitutes and gamblers. The latter were hoping to find their own bonanza by fleecing prospectors at the gaming tables.

With such a pot-pourri of humanity, it is not surprising that Sodaville developed into a rough, tough town. There was law and order which was both benevolent and mean. Overnight guests at the jail were not very pleased with their quarters. A large cave had been dug in the side of a low hill north of town. Adobe bricks formed the front walls and a solid, plank door saw to it that "culprits stayed put."

Supplies for Tonopah were hauled in heavy freight wagons pulled by teams of 16 to 20 horses or mules. The route skirted the eastern side of Rhodes Marsh and followed a pass through the Pilot Mountains to Crow Springs Way Station



On a canyon wall in the Excelsior Mountains, this steep talus slope is sizeable and dwarfs the author [upper center]. Good, but not plentiful specimens of petrified wood are found on the slope. White onyx occurs under the rimrock.

(*Desert* Aug. '74). After an overnight stop, the freighters made the long pull up the grade to Tonopah. Crowded stages followed the same route and made a mid-day meal stop at Crow Springs. It was a long, dusty and bone-wracking ride.

Sodaville's four years of favor, fame and fortune were brought to an abrupt end when the Tonopah Railroad was completed from Tonopah Junction (Rhodes Marsh) to the booming mining town of Tonopah. What a wild and wonderful celebration ensued! Flags at half-mast would have been appropriate for Sodaville.

The Carson & Colorado Railroad yard still remained at Sodaville and plans were underway for a much needed expansion of existing facilities. However, a land speculator had obtained options on the water supply and property desired by the railroad. When said speculator refused to take less than the exorbitant amount he was asking — he received a surprise. The railroad owners said "No" and elected to move all their facilities to Mina — four miles north.

Sodaville limped along until World War I. A resurgence of mining occurred when sheelite was discovered in the Excelsior Mountains a few miles west. The Silver Dyke Mine was developed and a mill built at Sodaville. Between the discovery and 1938, approximately $1,200,000 in ore was produced.

The post office was closed in 1917 and Sodaville, as a town, ceased to exist. In subsequent years, custom milling continued, as small scale ore production continued from various mines in the region. People began to slowly move away until only a handful of residents remained.

Jerry and I toured the townsite which is now dominated by the mill. Most of the buildings and houses are gone but former streets remain etched in the desert land. At the Diablo mill ruins we admired the beautiful, mortarless rock

work. On the hill north of town, we looked over the remains of the jail. It seemed to us that "one look" would discourage early transgressors — but this was not so.

One day we followed the route freighters and stages had used to reach Tonopah. It is a good, graded road now. Along the way, sections of the early trail are still visible. We marveled again at the strength and determination exhibited by early pioneers. They pulled their loads through sand, over rocks and up steep grades — man and beast working together. How stages negotiated these primitive trails will always be a mystery to me. It must have taken a great deal of courage to even ride in one over such terrain.

What "softies" we would seem to be with our four-wheel-drives, trailers and campers containing luxuries never dreamed possible 100 years ago. I can easily visualize a freighter pushing his hat back, looking at us with jaundiced eyes and remarking, "Better be careful. You might get your feet wet!"

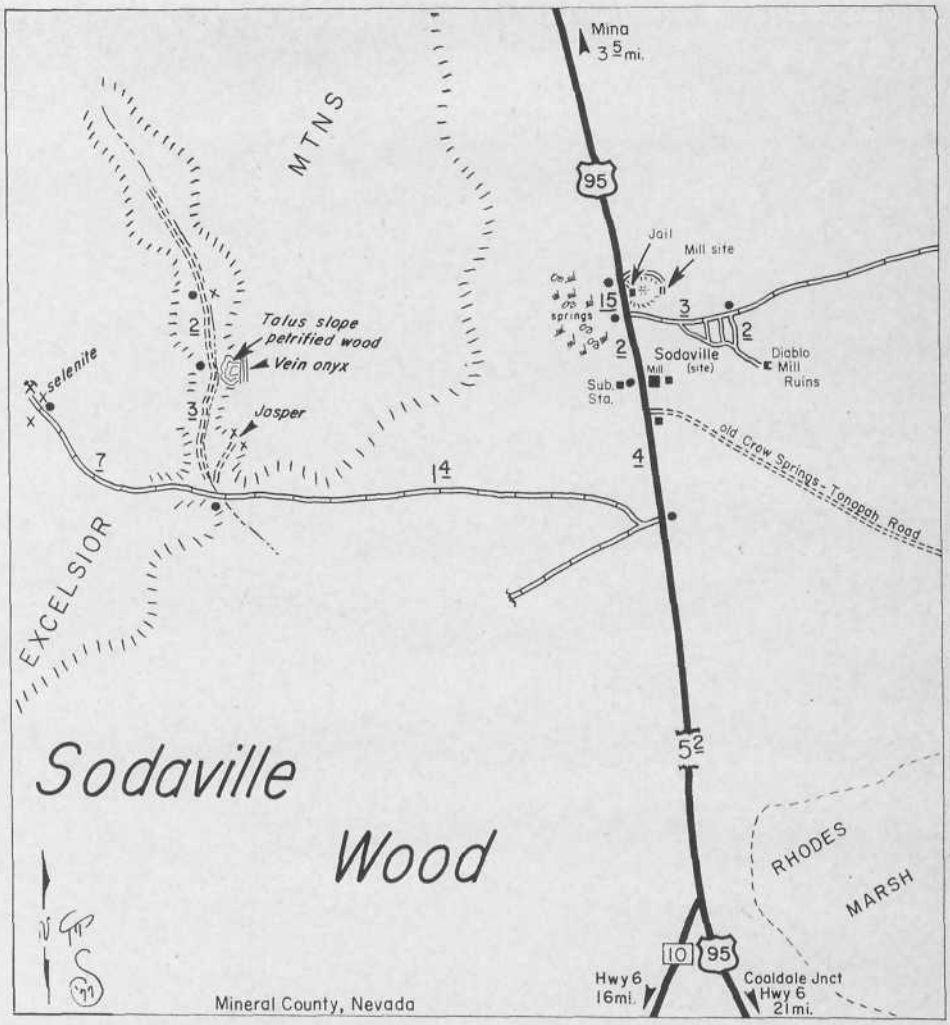
On our final day in the area, we planned to look over the Silver Dyke Mine. We headed west from Sodaville on a graded dirt road and almost immediately were confronted with a choice of routes. "Let's turn right. We can follow the other road later," was my suggestion. We never did explore the other road or the Silver Dyke Mine. Instead, we became involved with petrified wood.

Our road headed into the mountains. At another road Y, we kept right and ended up in a quarry. Mounds of dirt had been piled along the road and scattered over them were fairly large, crystal fragments of selenite. We didn't look any further but possibly some nice specimens occur here.

Our interest had centered on a narrow canyon back down the road a piece. We turned north into the wash and headed for the canyon. Water had erased any tracks in the wash but we spotted some faint tracks on the hillside. We followed them and soon came across small pieces of colorful jasper — yellow, brown and some red. It was of poor to medium quality. "Let's go back to the wash and follow it into the canyon," Jerry suggested. "Watch the float," he also advised.

Four-wheel-drive was engaged as the wash proved to be a bit sandy and rough. At times, we could see old tracks which we thought might indicate a mine or prospect ahead. Just after entering the canyon we came to a steep, talus slope on the east with a white outcrop under a basaltic rimrock. "Hey, better check that out," Jerry advised. His long legs quickly carried him upslope as I slowly followed behind. Then I spotted it — a nice specimen of wood. "There is wood here," I yelled so loud they probably heard me in Sodaville.

We found the limb sections occurred in ash. They are silicified, brown in color and attractive specimens. I was happy to add a new wood locale to my collection. Two small agatized limb sections were also found but a diligent search didn't turn up another one. The wood seems to occur in a rather small area which means the deposit will be limited. We selected the three best specimens and left the rest for other collectors. I wish all rockhounds would do the same. Most of us couldn't cut all the material in our backyards if we lived 200 years. Let's make our motto, "Take a little and leave a lot."



The white outcrop above the wood proved to be veins of white onyx. Two-tenths of a mile up canyon, we noted a small agate diggings on the right. Take along a pick, bar and shovel. You might just hit pay dirt. For those without four-wheel-drive, it is an easy, half-mile hike up the wash to the wood area.

In her day, Sodaville has seen several abrupt changes for both good and bad. Through it all she managed to evade the status of ghost town. Dreams and even plans were once made to turn Sodaville into an outstanding health spa. Who knows, another such change, since our visit, could have come about.

Certainly Sodaville and the surrounding region have all the ingredients for making such dreams come true. Until they do, we can enjoy them on a less grand scale — high, dry climate; clear skies and fresh clean air; scenic country; trails galore to explore; historical sites to visit and specimens to be found. It sounds like a bit of paradise and for the desert enthusiasts — it is.

(Note: Sodaville townsite is privately owned. Obtain permission before exploring the site.) □

DESERT FREIGHT

BUILT BY CHINESE STONEMASONS OVER 100 YEARS AGO, THIS OLD FREIGHT ROUTE IS STILL PASSABLE!

Right: View of the old freight road winding around the hill.

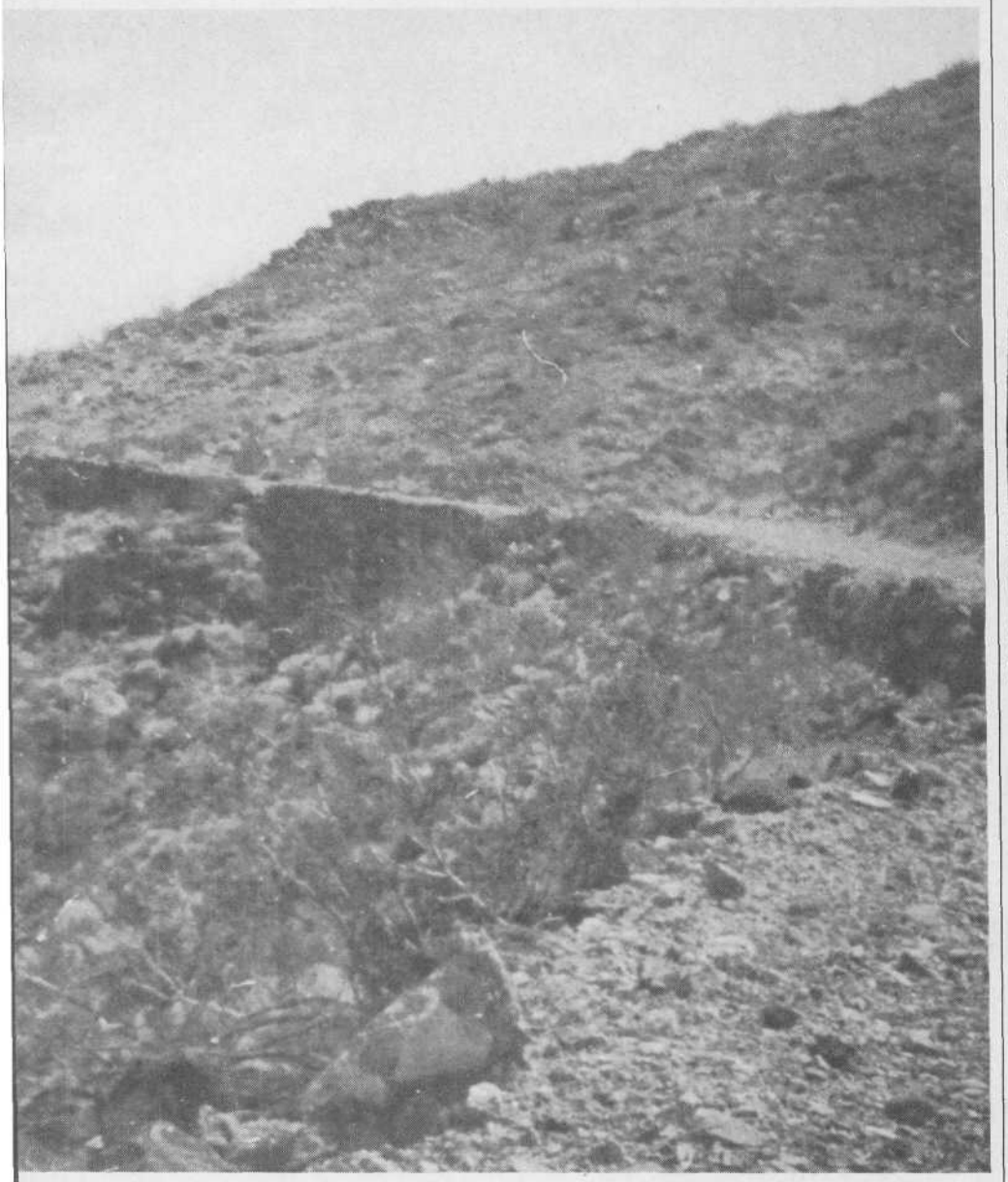
Below: A more detailed view of some of the Chinese rock work on the freight road.

TRAVELERS TO Death Valley, on the Trona-Death Valley Road, may notice the cut on the east side of the road when topping the Slate Range Crossing 15 miles north of Trona. On the other hand, the spectacular view of the Panamint Valley unfolding before them may have their entire attention. If forewarned, the traveler should be looking for the caution sign, and the narrow road leading upward and out of sight.

Here the highway crosses the path of history, for this narrow access in the rock wall is the old freight route of a century ago, leading to such exotic locations as Panamint (City), Lookout (City), Wildrose Station, Ballarat, Skidoo and Death

TRAIL

by OSCO N. COLE



Valley, and as late as 1949 the automobile road to any of these places.

This road was originally financed by Los Angeles businessmen as a means of diverting the wealth of Panamint (City) to their town. Remi Nadeau, and the Meyersteins afterward, built up the road, using Chinese craftsmen to lay the stone work supporting the road as it wound through cuts in the hills and around the edges of the mountains. At the foot of the hills, the location of the Chinese stonemasons camp is still visible, as are some of the tiny stone cabins they built there.

This road at its best was steep and crooked, and it has been told that back in the Model-T days those old cars backed up the road to give more power and to insure an adequate supply of gasoline to the engine.

Looking northward from the summit of the Slate Range Crossing, one may still see Nadeau's old pack trail leaving the foot of the crossing and heading north, "straight as an arrow," to be lost on the Northern horizon. From the evidence, Nadeau was a firm believer in the axiom that a straight line is the shortest distance between two points.

Today, over 100 years later, the old road is still passable, up or down, by pickup or four-wheel-drive — a monument to the early road builders. □

A cut on the right-of-way for the former Picacho and Colorado River Railroad provides a rough but passable track for off-road vehicles.

Wind erosion has etched this adobe wall at the second of Picacho's two stamp mills. Colorado River is in the background.

Picturesque Picacho

HISTORIC MINING CAMP ON LOWER COLORADO NOW A RECREATIONAL PARADISE

by BILL JENNINGS

photos by Weezy Wold

PICACHO means "peak" in Spanish, but that terse definition does scant justice to the rugged guardian of a historic Lower Colorado River mining area that in recent years has become a popular off-road camping, hiking and fishing mecca — the Picacho State Recreation Area, 25 miles northwest of Yuma.

A more imaginative name perhaps was the first Spanish title, Campana, applied in 1775 by Padre Pedro Font in the journal of the Juan Bautista de Anza overland expedition that led to the founding of San Francisco. Font used the Spanish word for Bell with considerable imagery. The 1,947-foot peak does resemble a squat bell from the southeast and, with its near-twin, Little Picacho, offers a distinctive navigational landmark for both river and overland travelers.

In fact, the first Anglo-Saxon name for the peak was Chimney, applied in 1858 by Joseph C. Ives who that year commanded the ill-fated paddlewheel steamboat, Explorer, on its somewhat ludicrous voyage from Yuma to Black Canyon, near the present site of Hoover Dam.

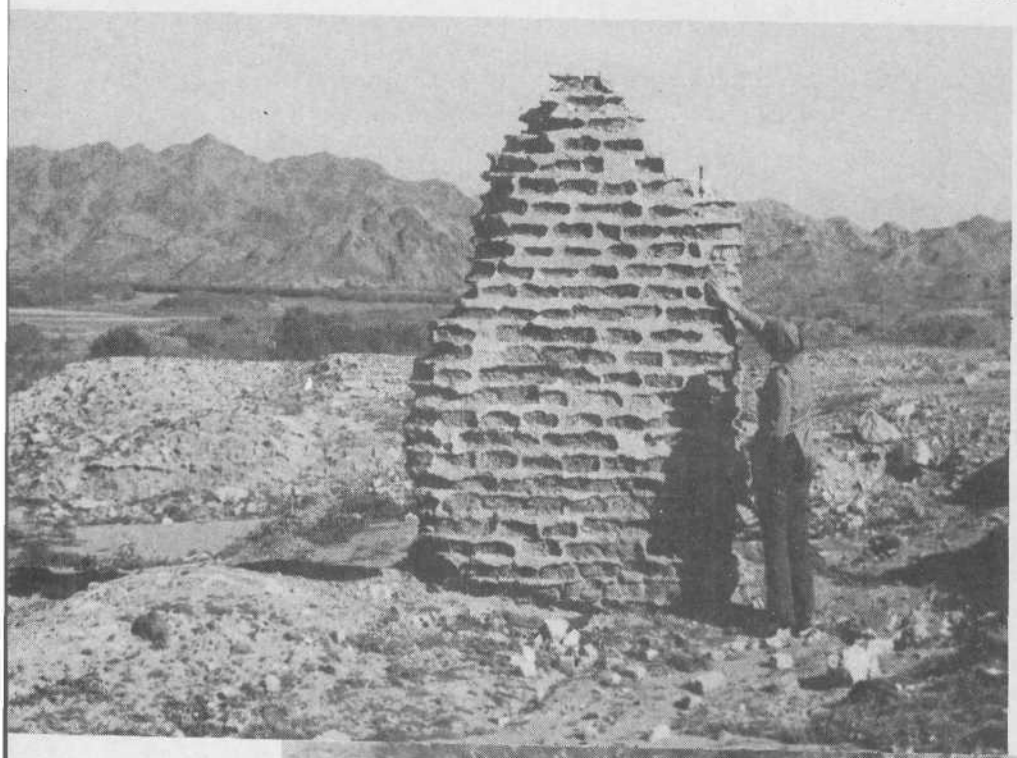
Ive's naturalist-artist was H. B. Mollhausen, whose drawing of the peak has been reproduced in this magazine and elsewhere over the last 120 years. There's no mistaking the profile and fortunately Ive's descriptive but less than romantic name didn't stick. It did cause confusion, however, since another lesser landmark along the river has been called the Chimney for many years and a nearby promontory to the north has been dubbed the Lighthouse due to its somewhat similar shape.

Whatever name, modern-day Picacho is well-remarked by recreationists who make the long and somewhat arduous trip regularly. Catfish, flathead and channel, striped bass and crappie combine to make fishing an all-year sport. But the main attraction for many visitors is the rare combination of living history

and an inter-laced network of Jeep roads.

There are 50 developed campsites at the state area's headquarters near the site of the second Picacho community, and more primitive sites abound along the river and just out of the 5,300-acre reserve in the washes, where you can have a fire legally. An overflow organized camping area is eight miles north of headquarters near the foot of beautiful Gavilan Wash.

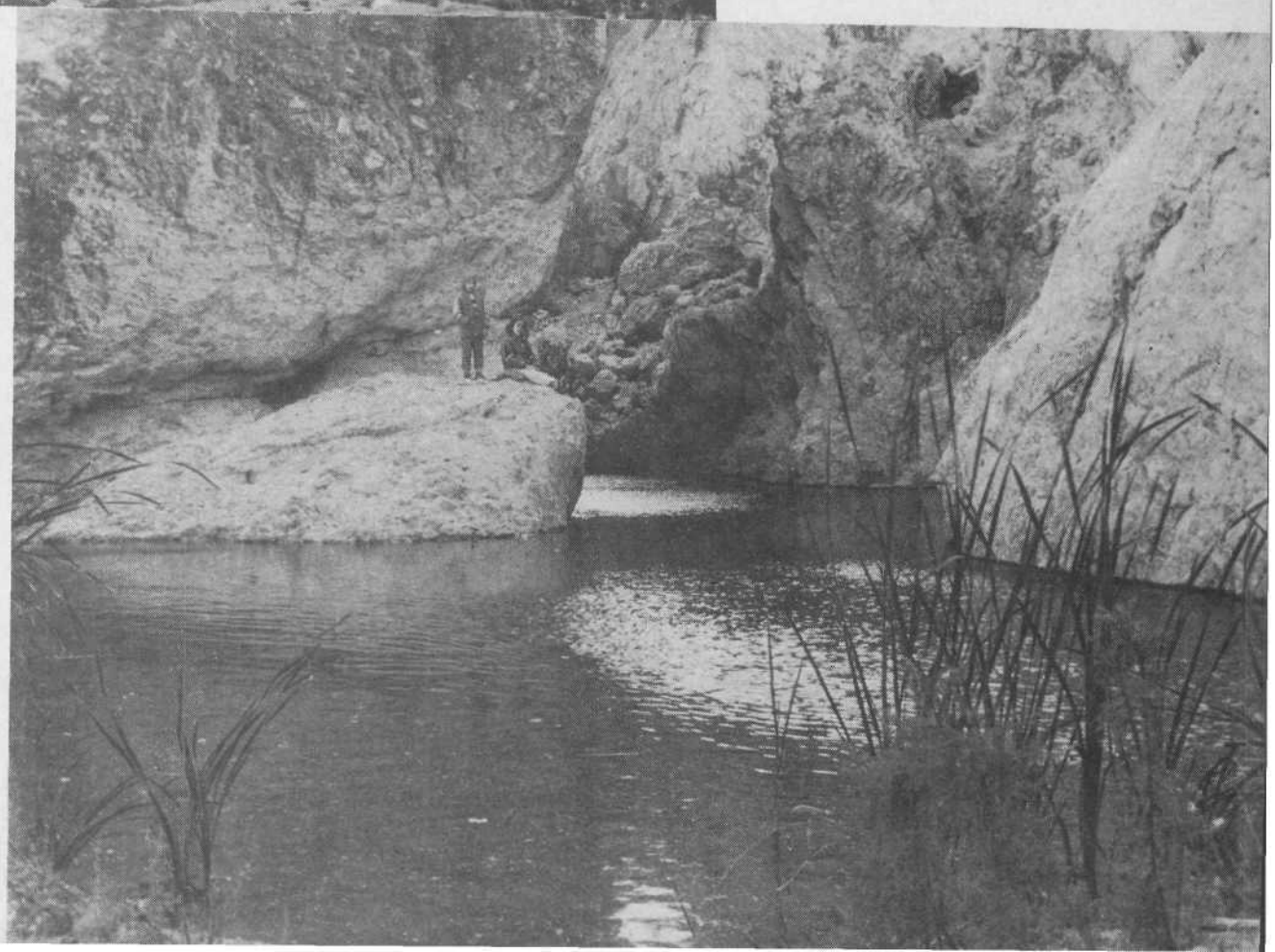
Access to Picacho is over two washboard and wash roads, one reaching about 24 miles north from Winterhaven and Interstate 8. The other, somewhat shorter but rougher, is via Indian Pass and Gavilan Wash from the Ogilby-Glamis Road, a 16-mile run over desert varnish and lava terraces into the sandy wash over a rough, one-way chute. Both roads are passable by conventional vehicles but first-timers are advised to travel light. Heavy campers, fifth-wheelers and longer travel trailers are not recommended conveniences here.



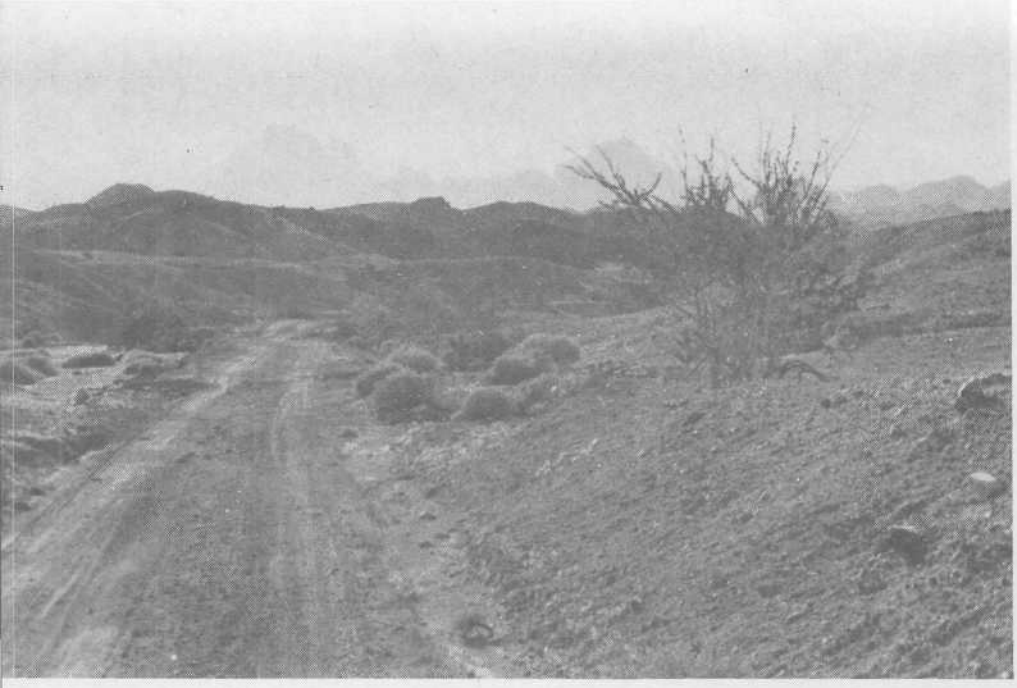
Once there, the area offers much in the way of scenery, history and recreational activities, but be warned, supplies are scarce. There is a small store at Picacho — the nearest neighboring shopping meccas are at Winterhaven to the south and at Glamis, 36 miles to the northwest. Gasoline is usually available at Picacho, along with fishing supplies and staple foods.

The back country camper also should carry his own water, or be prepared to drive the rough miles to park headquarters. There is no other source of reliable water in the area.

Much of the riverfront and buffering foothills are in the Imperial National Wildlife Refuge, established in 1941 to protect the area from Martinez Lake north to Palo Verde near the Riverside-



Young visitors to the Picacho State Recreation Area wait in vain for fish to surface at the wildlife pond in Carriso Canyon. Pond contains tadpoles and provides water for small populations of bighorn sheep, feral burros, birds and smaller animals. Remnants of an old diving board are behind the children.



Little Picacho Peak, on left, and Picacho Peak, sentinels over historic mining district on the Lower Colorado River, mark sites of several historic gold mines in area now protected as a state recreation area. Picacho is 25 miles northwest of Yuma, Arizona, on the California side of the river.

Imperial counties boundary above Walter's Camp. The refuge covers 25,765 acres along the main channel and all the backwater lakes, oxbows, elbows and ponds in both California and Arizona. A useful bird checklist is available at the park office.

Many visitors come to Picacho to sample its rich history, a microcosm of the Colorado River Valley's long and tumultuous mining epic, which began with the Spanish explorations of the 17th and 18th centuries and continues somewhat abated today.

The stone-walled remains to two big stamp mills, more than two dozen working mines, ranging from glory holes to tunnel and shaft affairs, a five-mile long narrow gauge railroad and the foundations and chimneys of a village that once housed 2,500 people mark the Picacho district, southernmost California mining region.

Some historians feel the mining era began soon after the Anza expeditions of 1774 and 1775-1776, but that is doubtful because of the hostility of the Quechan or Yuma Indians, whose descendants still live in the Winterhaven-Bard district.

The Quechan ended the Spanish colonial era almost before it began by killing priests, soldiers and colonists around the little Yuma mission soon after it was established in 1781. The area was not exploited again by the Spanish and the Mexican colonials also left the Indians alone before the Mexican War changed the face of the Southwest in 1846. Ironically, there is evidence of Mexican mining activity before that time in the Cargo Muchacho Mountains only 15 miles west of Picacho. It is thought that isolated range was considered taboo by the Quechan and was not in the territory of the western desert tribes either.

At any rate, the generally accepted date for the beginnings of the Picacho district is the spring of 1862, when a Sonora-born man, Jose Maria Mendivil, ventured northward from Yuma on his way to the La Paz gold strike, just east of modern-day Blythe.

Mendivil had been a hostage of the Apache most of his life and escaped to Yuma some years earlier. He did not tarry at Picacho long enough to see the source of the placer gold he found in the lower washes. La Paz did not make his fortune, however, and he returned to Picacho within 10 years and established a legal homestead and began a more earnest search.

His little ranch later became the site of both the first and second mills, the town plot and some farming operations that provided food for the hordes to come later. Mendivil had married while at the La Paz diggings and his family included five sons and two daughters by the time the Picacho rush began in the late 1870s.

Most of the male members of the family worked the mines and provided the slightly fictionalized plot for Zane Grey's 1920 classic, *Wanderers of the Wastelands*. Grey lived in Picacho briefly about 1910 and found the colorful family tailor-made for his story of Sonora miners adrift in the desert.

The first mill was built in 1878 by David Neahr of Yuma, who chartered the little woodburning sternwheel steamer Cocopah to bring 30 tons of machinery to Picacho. Most sources agree mining had been sporatic and unprofitable before Neahr built the 15-stamp mill on a bluff overlooking the river. About 60 people lived and worked on the site, part of the Mendivil homestead.

Within a year, the mill was the property of a New York physician, Dewitt C. Jayne, who brought ore from the Picacho Peak basin five miles to the mill by mule pack train. The partially processed ore was shipped to San Francisco by a laborious steamer route, down the river to the delta aboard the shallow draft sternwheelers, part way through the Gulf of California aboard small coastal steam schooners and on through the Pacific to the Golden Gate aboard ocean-going freighters. The same six-week process occurred every time the U.S. Army wanted to supply or re-staff its armed forts at Yuma and Ft. Mojave, near today's Needles.

The Neahr-Jayne mill was built solidly, utilizing huge timbers shipped from Northern California and hand-cut stone from the rhyolite tuff that comprises the bluff. Much of the basic building remains today at the end of a one-mile nature and historical trail established by the California Parks and Recreation Commission soon after the Picacho area was set aside 10 years ago.

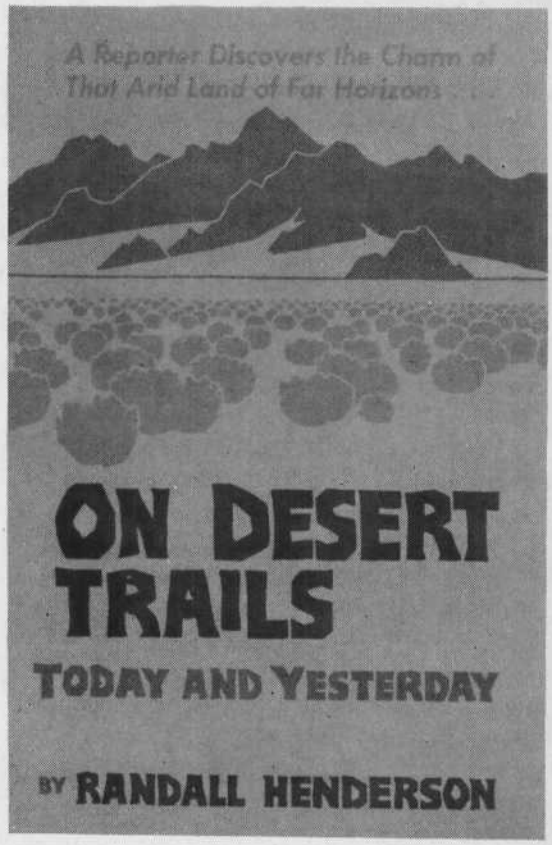
The California state mineralogical report of 1882 indicated Dr. Jayne shipped 6,000 tons of ore assaying $21 a ton the year before. His operation was abandoned within 20 years and he died after being thrown by his horse at Picacho in 1896.

Jayne's successors were a syndicate headed by former U.S. Senator Stephen A. Dorsey, who arrived from Denver in 1895. Dorsey's group built a second, somewhat larger mill a quarter-mile up the bluff and reportedly could process up to 450 tons of ore daily with stamps and a cyanide mill. Eventual production was pegged at 1,000 tons a day but it is

THE LAST

200 COPIES!

Through the courtesy of the publisher, Westernlore Press, the last 200 copies of this desert classic are now available from Desert Magazine Book Shop. Written by Randall Henderson, founder of **Desert Magazine**, with designs by Don Louis Perceval and maps by Norton Allen, this book is a must for desert buffs. Few men have known the desert and its people like the author, who spent over half a century as a reporter and editor on its frontier. Hardback, dust jacket, illustrated, indexed, 357 pages.



$7.50

Please add 50c for handling/postage
California residents add 6% state sales tax

Desert Magazine Book Shop

P. O. Box 1318 Palm Desert, California 92260

The Dorsey millsite at Picacho mining district near Yuma gives only a hint of the vast operation that existed from about 1895 to 1910. Ore reached the Colorado River by narrow gauge railroad and concentrates were shipped to Yuma and San Francisco by steamer. Area is now protected by the State of California as a historic recreation area.

doubtful the mill could handle that amount.

For one thing mine production was always spotty and the little railroad — the Picacho and Colorado River — would be swamped. It had a modest fleet of four-wheel dump cars carrying perhaps 10 tons each, one small locomotive and a stiff grade back to the mines.

Regardless, Dorsey's efforts to raise additional capital in Colorado, the East and even in Europe failed and the Colorado Iron Works foreclosed on its $38,845 note for the equipment in 1906. The grandly named California Gold King Mining Corporation underwent a hasty reorganization, consolidating most of the Picacho claims and the now-crippled mill into the Picacho Basin Mining Company. In 1908 the mill was moved nearer the mines, hard by the Diablo shaft and operations continued weakly until 1910.

In that year, the old U.S. Reclamation Service completed Laguna Dam, near Bard, blocking the river channel to the river steamers. A Picacho enterpriser, Billy Horn, constable, storekeeper and saloon keeper, filled the breach quickly with a 12-mule team and wagons to freight the crushed ore to Yuma.

Ore assayed as high as $700 a ton but soon dropped to about $3, a figure well below production costs. The great Picacho boom, which had produced upwards of $14,000,000 in ore shipped from

1880 on, was over.

Interestingly, several of the old mines are again being worked, very irregularly and with unknown results. Most of the sites are posted against trespass and Picacho visitors are warned to heed the signs and chain barriers across some of the old roads.

Most of the ex-wagon roads are still open for the hardy, however. One particularly hairy route, for short-coupled Jeeps primarily, rises out of Gavilan Wash near the park boundary, drops down a 40 % grade into beautiful Carrizo Wash and climbs again through Bear Wash and eventually joins another track westerly through the Cargo Muchachos and meets the Glamis-Ogilby highway near its southern terminus on Interstate 8.

A word of caution, however. Most of these trails are marked on the topo sheets as "Jeep trails," and that's safe advice. After big storms, such as the tropical-origin gullywashers of last September, even four-wheelers have trouble getting through.

Carrizo Wash is one of the most beautiful in the Picacho area, including a half-acre sized freshwater pond installed by the California Department of Fish and Game as a wildlife guzzler. It's on private land and campers are asked not to stay there overnight so that animals may drink undisturbed. The track to the Cargo Mucachos re-enters Carrizo wash upstream from the pond and rock falls.

Present manager of the Picacho State Recreation Area is an old friend of many desert denizens, Ernie Brown, former naturalist at Anza-Borrego Desert State Park to the west. He also was manager at Lake Elsinore State Recreation Area for a time.

His small seasonal staff consists primarily of "Big Eddy," a retired career Marine who has labored at Picacho the past six years. As Brown, Eddy is a history and natural sciences buff and well able to field most of the questions dreamed up by the visitors.

The best time to visit the area varies with your purpose. Anglers, being as single-minded as golfers, venture forth the year-around; rockhounding is a fall-winter-spring enterprise when the off-roading is the most comfortable. Weather-wise, it's best right now, late winter and early spring. The mosquitoes get as big as the law allows in summer and mid-winter mornings often drop well below freezing.

The peak use period, according to park records, is from later October through late April. One thing is for sure:

Picturesque Picacho offers something for everyone, every month of the year, combining scenic beauty with a still largely untold mining history that spans a century or more. □

FROM ARROWHEADS TO ATOMS

by RUTH W. ARMSTRONG

A FASCINATING NEW MEXICO LOOP TRIP

Because of their volcanic origin the Jemez Mountains show brilliant shades of reds, purples and yellows. Photo by Ellis Armstrong.

THERE IS a 200-mile circle trip out of Albuquerque, New Mexico, that spans man's history from stone axes to atomic bombs. It goes through geological formations far older than the history of man, past prehistoric cliff dwellings, Indian pueblos of today, old Spanish farming villages, a mountain vacation town, the super-clean, super-planned atomic city of Los Alamos, and finally Santa Fe, the dowager queen of all American cities whose crown may have slipped a little, but there's lots of charm and wile in the old girl yet.

It's all good road and the trip can be done in one day without much trouble if you like to skim surfaces, but it should be a two-day trip at least, or two weeks are even better. There are good motels and hotels in Los Alamos, Santa Fe and Albuquerque, but if yours is a camping family there are half a dozen campgrounds in Santa Fe National Forest, and several tribal campgrounds along the way.

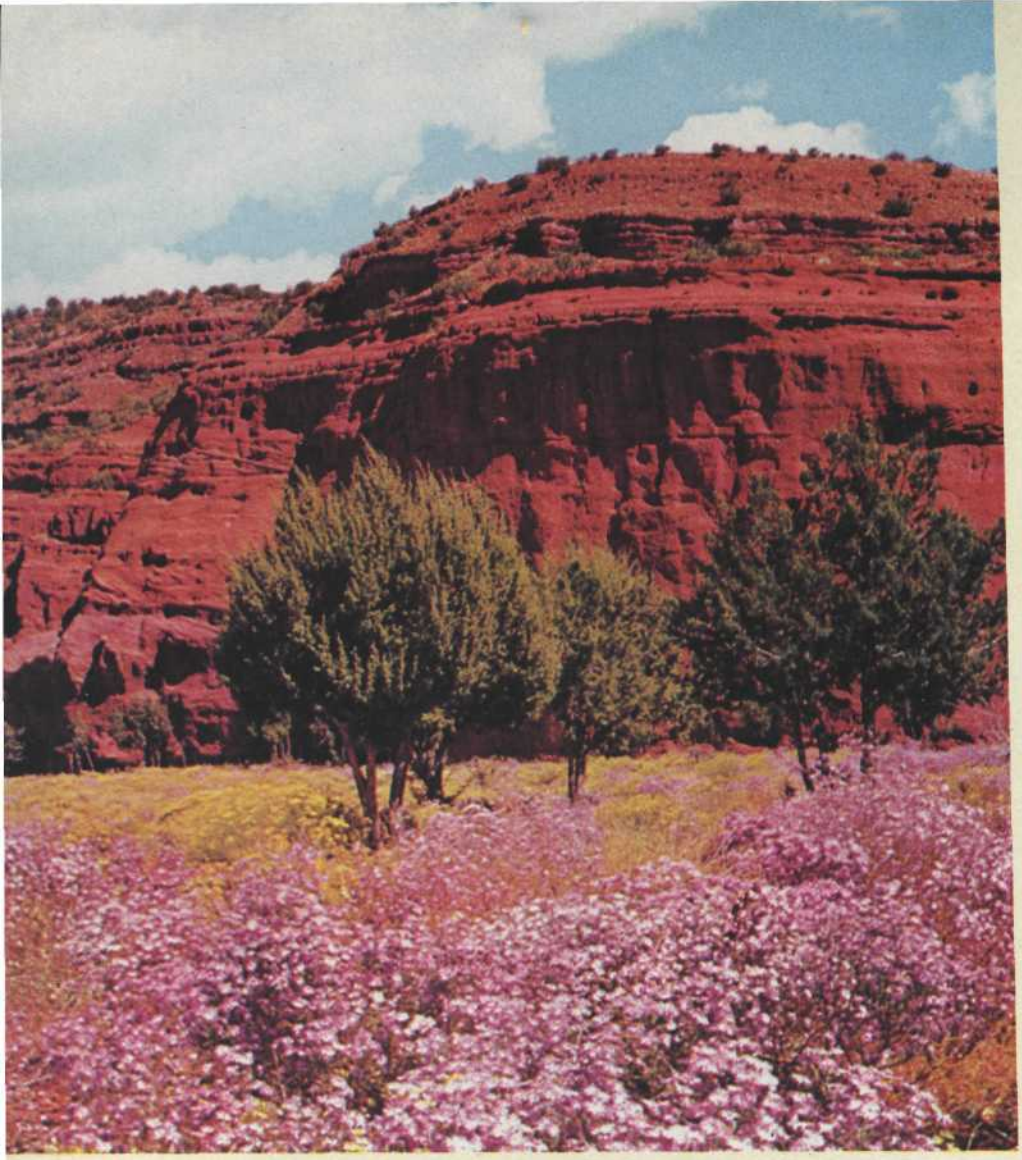
The route goes north of Albuquerque on Interstate 25 to Bernalillo; northwest on New Mexico 44 to the junction with New Mexico 4 which circles through the Jemez (hay-mess) Mountains and comes out at Santa Fe, returning on Interstate 25 to Albuquerque.

Albuquerque, itself, is an interesting city along the Rio Grande, reaching up the foothills of the brooding Sandias. In the past few years a deteriorating downtown has been replaced with sparkling fountains and handsome new modern buildings that manage, in spite of steel and glass, to retain a suggestion of "pueblo" architecture that is so appropriate to this location.

Just west of Bernalillo on New Mexico 44 is Coronado State Park and Museum on a bluff overlooking the river. The prehistoric Indian pueblo and kivas have been excavated and a museum displays artifacts relating to that period. There is some question that this is actually the pueblo at which the Coronado Expedition wintered in 1540, but it is either this one or an unexcavated one about a mile south. It makes no difference now. The two pueblos were contemporary and were inhabited by the same tribe. The park and campground has attractive pueblo-style shelters with grills, benches and tables that look across the Rio Grande to the rugged Sandias. State campgrounds charge $2 a night, or with hook-ups, $3.

The route continues through colorful semi-arid hills and mesas past two Indian Pueblos on the right, Santa Ana and Zia. Both are marked with good signs that tell a little about their history. Santa Ana is a closed pueblo except on feast days two or three times a year, but Zia is open and visitors are welcome to look around the village and beautiful old mission church. Photography is forbidden anytime. Zia pottery is considered some of the finest made.

A few miles farther, at the old Spanish farming village of San Ysidro, New



Mexico 4 goes north into the Jemez Mountains and Santa Fe National Forest. The earth begins to show its volcanic origin and even the adobe houses are a dark red-brown. The road follows alongside Jemez Creek through a canyon that becomes increasingly colorful and narrow, the red, yellow and ochre mesas rising steeply on both sides of the canyon. Trees and shrubs look emerald green in contrast to the red soil.

Four miles from the junction (45 miles from Albuquerque) is Jemez Indian Pueblo, one of the larger of the 19 Rio Grande Pueblos. These are descendants of the ancient ones who were here thousands of years before the nomadic tribes such as Apaches or Navajos, or the Spanish colonists or American frontiersmen came into New Mexico. The Jemez language is different from that spoken by any other tribe, and in their mountain fastness they have retained their independent character. They were one of the last tribes to be reconquered after the great Indian rebellion of 1680. Whenever Spanish soldiers marched to conquer them, they simply retreated to the mesa and mountain tops, or went west to live with the Navajos for a while. They still have strong social ties with this tribe and on any feast day at Jemez you will see many Navajos.

Ceremonial dances at Jemez are some of the best, and occur at unscheduled times throughout the year, but those regularly scheduled, to which visitors are welcome, include the Old Pecos Bull Dance on August 2; dances to honor their patron saint, San Diego, on November 12; the Matachines dance on December 12 which is a strange adaptation of a Moorish-Spanish morality dance; and Christmas dances between Christmas and New Years, and again on January 6. Photography, sketching or taping is prohibited at most Indian ceremonials, so always ask before you get your camera confiscated.

A few miles beyond the Pueblo is the village of Jemez Springs, headquarters for fishermen and ranchers in the area. A large part of the canyon has been bought during the past 20 years by the Catholic Church for Via Coeli Monastary and several retreat houses. They have two chapels on the highway, and both are worth seeing.

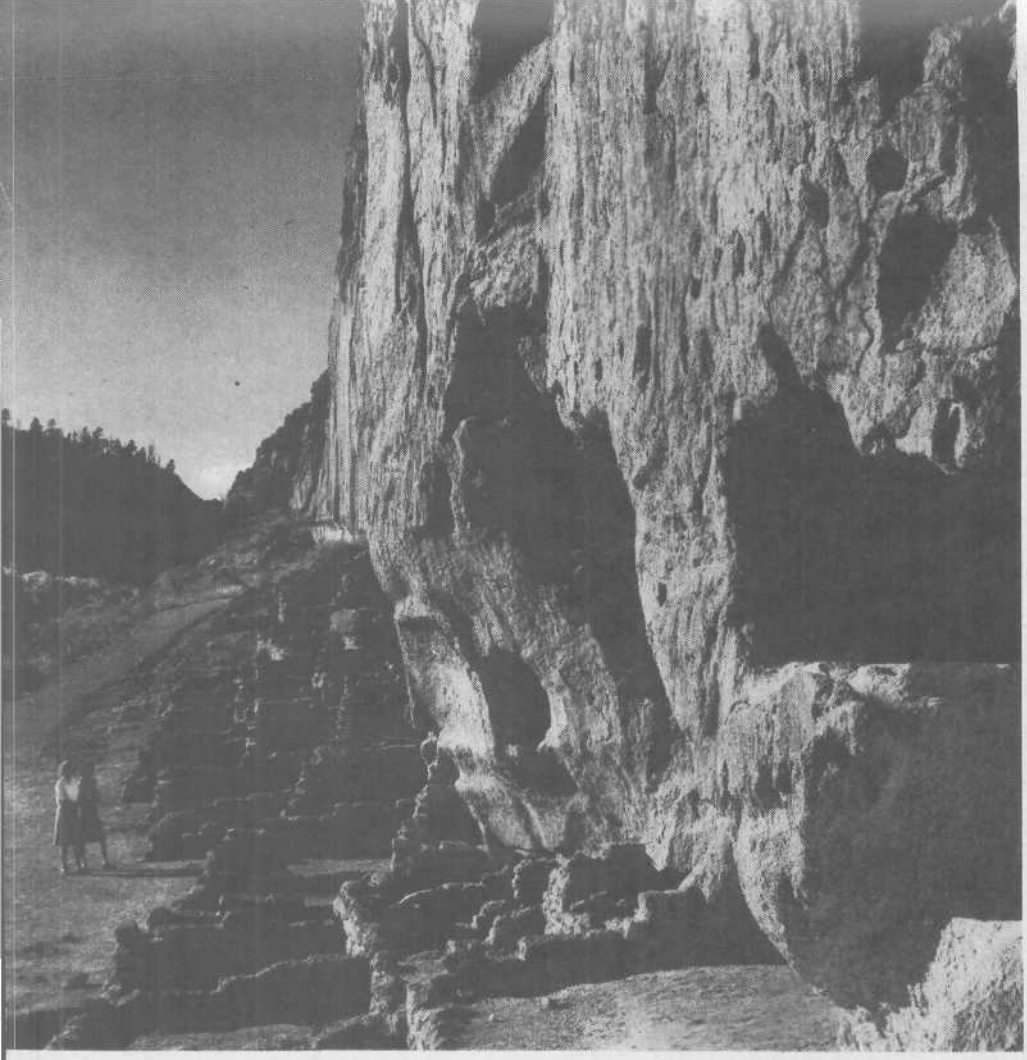
Directly across the highway, and in startling contrast to the modern architecture of the chapels, is Jemez State Monument, ruins of the magnificent Mission of San Jose, built around 1620 and destroyed during the Indian Rebellion of 1680. It has not been used since then, but the ruins are preserved, and part of the surrounding pueblo has been excavated. The beautiful walls of red sandstone are from five to seven feet thick, and as you stroll through the quiet, sunny ruins, you can only imagine how it must have been three centuries ago.

You can sympathize with the Franciscan priest who tried to teach European concepts of building, agriculture, religion and social life to a pagan people in this faraway place. You can also understand the anger and violence aroused in these normally peaceful, placid people when the church banned their ancient rituals based on a unity with nature, more civilized by far than the religion that spawned the Inquisition.

During the rebellion every priest and most of the colonists in the province were killed. Survivors fled to Mexico. At Jemez the violence of the Indians was greater than at any other pueblo. They stripped the priest, Father Alonzo de Luga, forced him to ride a pig, then crawl on his hands and knees around the courtyard while they beat him until he died.

Beyond Jemez Springs the road continues over aspen- and pine-clad slopes to Battleship Rock, a great basaltic formation with picnic and campgrounds at its base. Two other forest campgrounds are a little farther along on this road, and three others on side roads leading to lakes, streams and waterfalls. If you plan to camp out stop at the District Ranger Station at Jemez Springs for maps and information.

When the route reaches the top of the circle it makes a wide sweep along one side of Valley Grande, or Big Valley, the source of all volcanic material that makes up this massive Jemez Mountain Range. It's not like any volcanic crater you can



Above: Ancient cliff dwellers of Frijoles Canyon built homes along the base of the cliffs, and used the natrual caves as additional rooms. Harvey Caplin photo. Below: Coronada State Monument, Bernalillo, 18 miles north of Albuquerque. This excavated ruins along the Rio Grande is the site of a pre-historic Indian pueblo where the Coronado expedition headquartered in 1540-41. The museum and ruins are open to visitors.

imagine, in fact, to be technically correct, it is a caldera rather than a crater. Now it is a green grassy valley surrounded by timbered slopes, about 12 miles wide and 18 miles long. Fat cattle grazing in the valley look like toys far below. Once this peaceful scene was the interior of a seething volcano. Volcanic matter oozed from fissures along the base, building up a plateau 50 miles long and hundreds of feet thick. Eventually the whole mountain top collapsed into the cavity creating the caldera. This was millions of years ago, but the cataclysmic event shaped life and times even to today.

Here in the pine-covered canyons and mesas of that volcanic plateau is Los Alamos Scientific Laboratories, established at a private boys school in 1941 so scientists could work in absolute privacy and secrecy on the atomic bomb. Research has branched out into many peacetime applications such as energy from nuclear fusion rather than fission; geothermal, hydrogen and solar and wind sources. Cancer treatment has been furthered by the development of the Meson Facility. Drilling for oil, water, gas or geothermal beds has been made simple by the development of a ray that melts a hole in the earth, and lines it with impenetrable molten rock as it goes.

During the war and for about 10 years after Los Alamos was a closed city, but now it is open like any other American city. It is at 7000 feet elevation on timbered plateaus cut by deep canyons. It sparkles with cleanliness and orderliness and everything seems green—yards, mountains, trees. The ratio of Ph.Ds here is higher than on many college campuses, even in proportion to population. There are an interesting museum relating to scientific development, a golf course, and one or two good motels.

In another canyon, about 10 miles from Los Alamos is Bandelier National Monument, well-preserved cliff dwellings and ruins once inhabited by tribes of prehistoric Indians whose descendants now live in the pueblos along the Rio Grande between Albuquerque and Santa Fe.

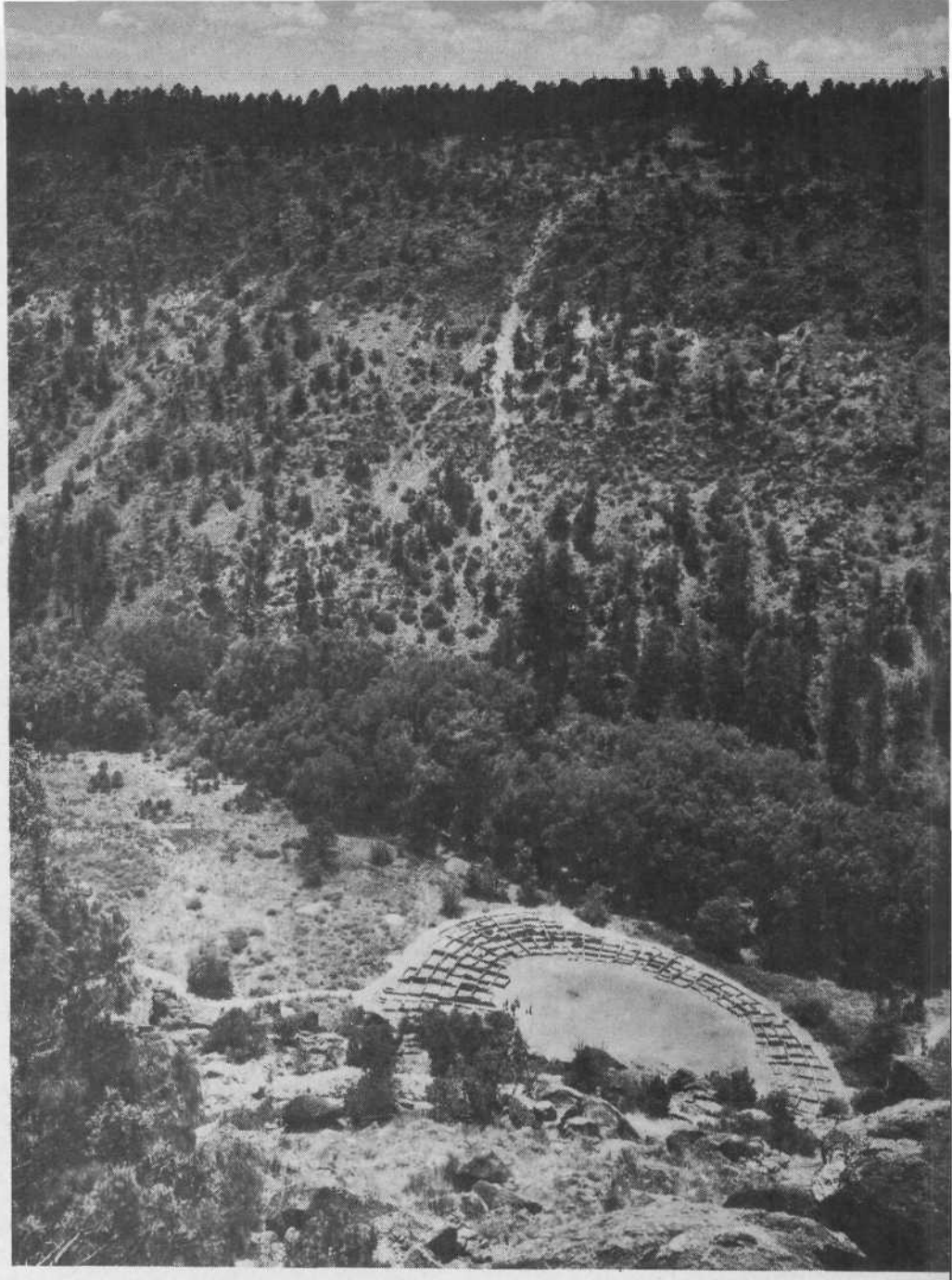
This canyon, named Frijoles Canyon (Bean Canyon) by the Spaniards, was inhabited from about 1200 to 1500 A.D., and it is easy to see why they chose to live here. The cliffs of compressed vol-

canic ash eroded into natural caves and overhangs, offering shelter and protection. They built homes of volcanic stone along the base of the cliffs, using the caves above for additonal rooms. A small stream flows through the canyon, fed by snows of the high mountains. Small meadows provided fields for corn to supplement their diet of game, berries and nuts. As the tribe increased a large circular pueblo was built on the floor of the canyon containing 300 rooms and going up to three stories in height. This ruin, Tyuonyi, represents the high point in the culture of Frijoles Canyon. Excavations have found a handsome black-on-white pottery, fragments of weaving showing they used a native cotton, blankets of turkey feathers, and carvings, ornaments and tools of several kinds of stone and bone.

At monument headquarters are campgrounds, picnic areas, a small rustic lodge and snack bar. Trails start at an interpretive museum, and you can go on your own or with a ranger. Easy trails go to the ruins of Tyuonyi and the talus houses and cliff dwellings where ceilings in the caves are blackened by centuries of smoke. The trail continues another mile to Ceremonial Cave, a large arched opening reached by climbing a series of ladders to a ledge about 150 feet above the stream. About 90 percent of Bandelier National Monument is wild country, and over 60 miles of maintained foot and horse trails lead to features of rugged and scenic beauty. There are also many other archeological sites along the trails, such as the Stone Lions, only known example of bas-relief work by prehistoric Indians in the Southwest; petroglyphs and pictographs, and several other pueblo ruins. There are beaver dams along the stream, wild flowers, deer, wild burros, hundreds of varieties of birds and other wildlife in the forests.

Even though the trails are maintained, you start at 7000 feet elevation at headquarters, and go much higher, and there is much climbing up and down steep canyon walls, so you should be in good condition. Park rangers ask that anyone intending to hike into the back country register when they leave headquarters and check in when they return.

After you leave Bandelier the road drops abruptly off the high plateau down to the valley, then climbs the foothills of another range, the Sangre de Cristos, whose foothills enfold the ancient city of Santa Fe. Founded in 1610, this old capital has seen glory and degradation, love and neglect. Its low, horizontal lines of pueblo architecture flow over the hills and seem part of the earth. Restaurants, shops, galleries line the narrow crooked streets, following paths made by burros and woodcutters. There are several excellent historical and art museums, the most interesting one on the north side of the plaza in the building that served as the capitol during Spanish, Mexican and American rule. Santa Fe is more than a town, it is an experience. In spite of the inundation in recent years by people who have discovered it, it is still a charming, restful and different kind of town.



Bandelier National Monument in the Jemez Mountains preserves pueblos and cliff dwellings that were inhabited from about 1200 to 1500 A.D. Harvey Caplin photo.

This circle trip is completed when you return to Albuquerque, and if you want to add one more cherry on the sundae, take New Mexico 14 instead of Interstate 25 back to Albuquerque. It goes around the Sandia Mountains through several interesting old ghost mining towns that knew boom days in the past, but now even their bust days are interesting.

There is probably not another two-hundred-mile trip in the country that covers such contrasts in scenery, history, and geology as the one from Albuquerque through the Jemez Mountains and Santa Fe, past cliff dwellings and nuclear space age installations. □

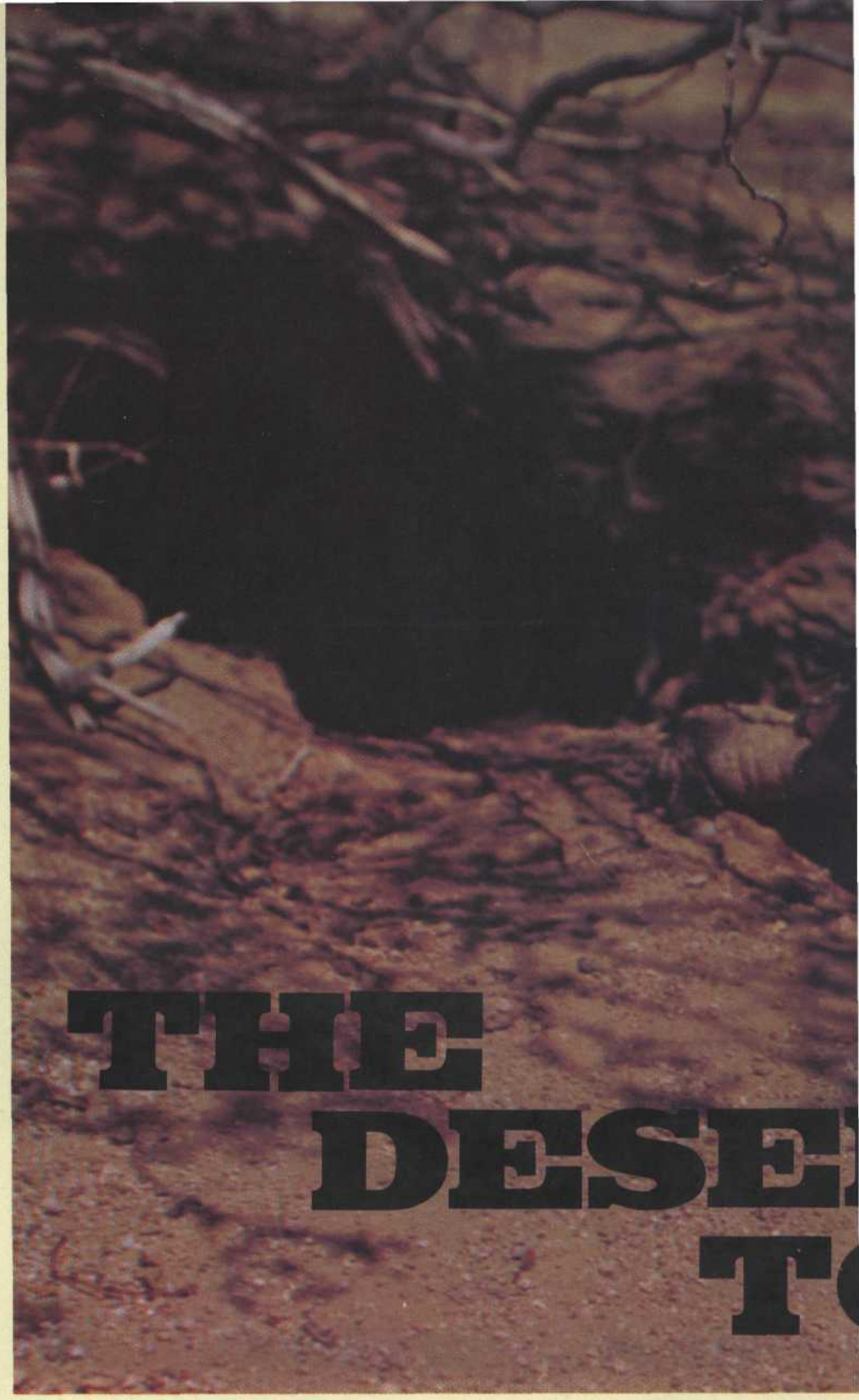
WE FOUND the little creature lying upside down on a busy street in the San Fernando Valley, inching her way into the evening rush hour traffic as she struggled in vain to right herself. We picked her up and combed the neighborhood in an unsuccessful attempt to find the owner from whose yard she must have escaped. After all, a desert tortoise just doesn't turn up in the city unless someone has brought it there!

From the willingness to eat lettuce right out of our hands, and her general lack of fear, we concluded that she had been a captive for quite a while, and it didn't take an expert to see that her shell had been badly cracked at one time. For these reasons, as well as the fact that the desert that year was unusually barren of vegetation, we decided to keep her. This turned out to be the right decision, although a hard one for two petless people to make, because we didn't know then that a once-captive tortoise should not be returned to the wild! However, in the four years that we have had her, during which she doubled her shell to 10 inches, she has been a continuing source of joy to us, and the cause of a mounting concern for her entire species. Cleo quite literally changed the course of our lives.

Since that fateful day, we have acquired several more tortoises of various sizes — all second-hand. For example, when some neighbors decided to get a divorce, we were given custody of the tortoise! In addition, we've managed to rescue many others, either by preventing their capture or by taking them a safe distance off the highway where many are slaughtered every year.

From a starting-point of total ignorance, we have tried to learn as much as possible about these gentle, harmless creatures which have evolved little if any since the days of the dinosaurs.

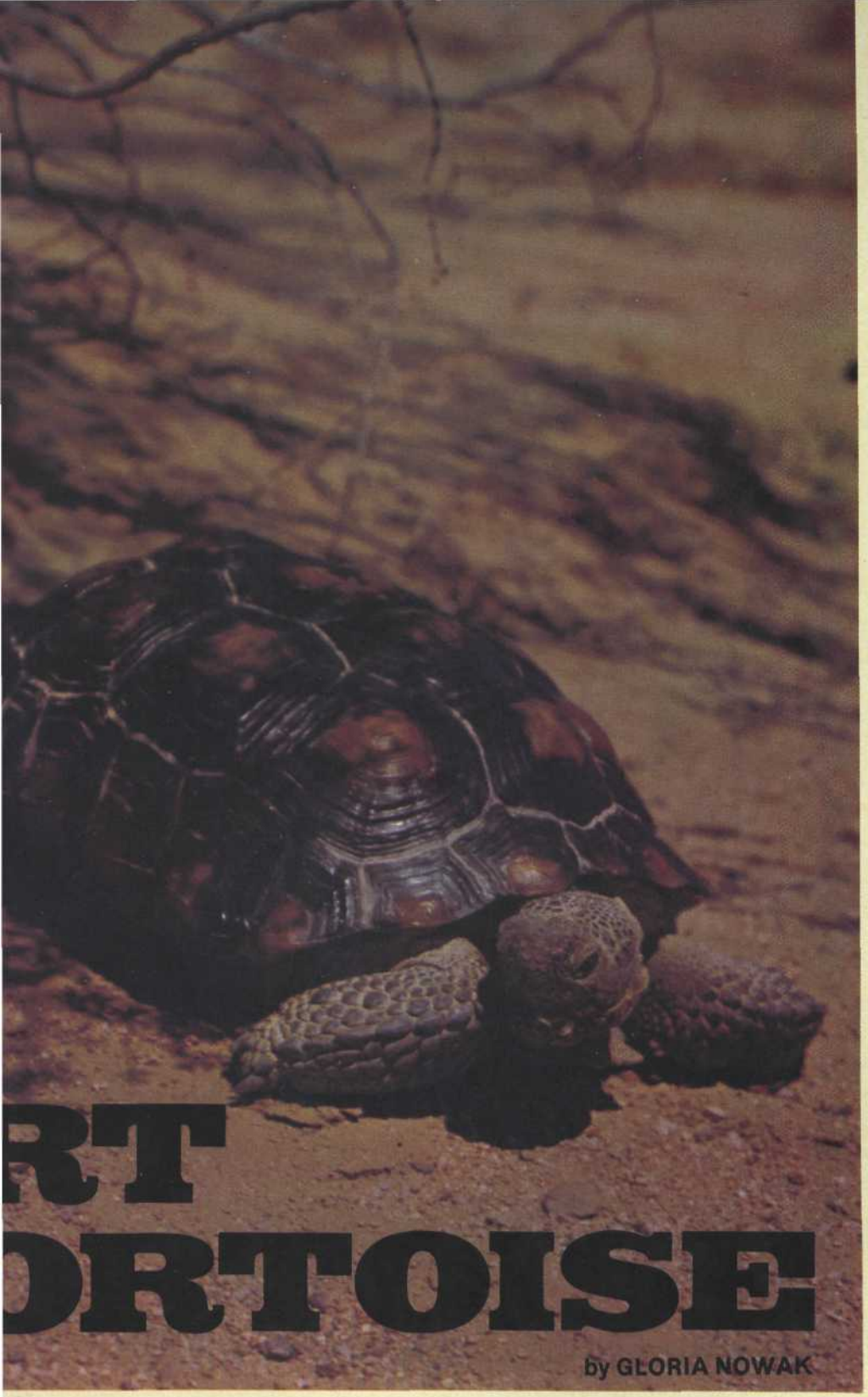
The desert tortoise is a completely docile, amazingly self-reliant reptile which harms no one and asks only to be left alone in its home in the arid land regions of our southwestern states. In order to survive, it must be continually alert to anything that moves. Yet, if it manages to escape all predators, none of which it can outrun, it will outlive most other animals. Some of them are known to have reached the 50-to-70 year age bracket. This is not too surprising since many of them show evidence of having recovered from the most horrible-looking injuries, such as cracked shells and missing feet, without any medical aid.



THE DESE T

As inoffensive as these creatures are, they can arouse in those with sick minds an unbelievable streak of cruelty. They have been shot, stoned, chopped in half, hurled through the air and deliberately run over. They could use a few friends, because they certainly have enough enemies!

As nearly everyone knows, the desert tortoise has been named the California State Reptile, and the removal of one from its native habitat could cost a $500 fine. Though not yet on the endangered species list, they could be in the foreseeable future; having man, recreational vehicles, mining, livestock grazing,



RT ORTOISE

by GLORIA NOWAK

agricultural development and the relentless encroachment of civilization to contend with, in addition to their natural enemies.

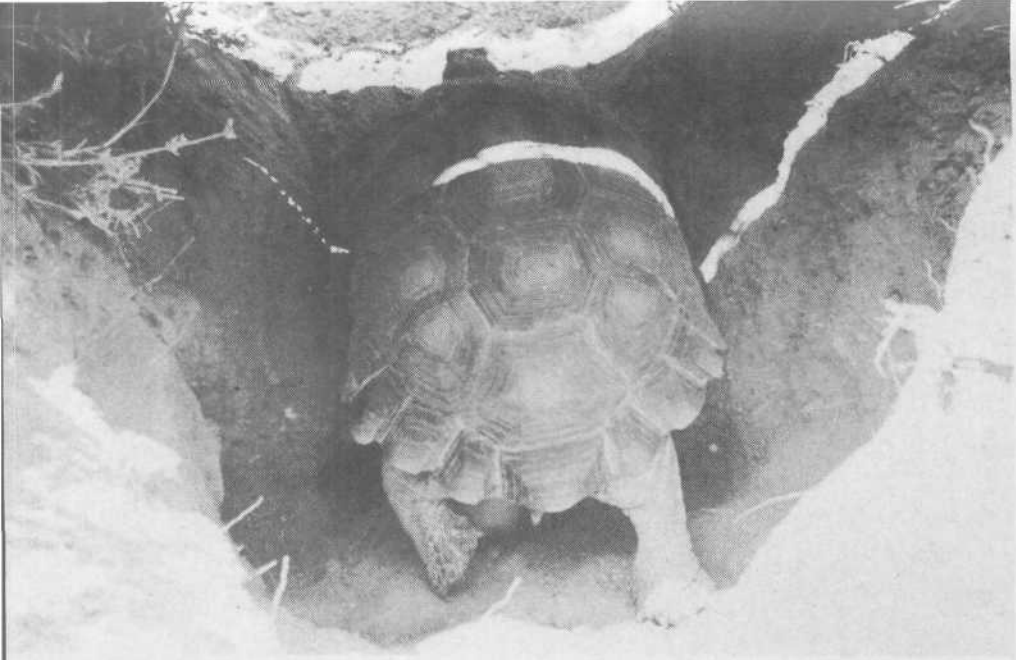
Since the advent of the off-road vehicle, there has been a steady increase in the use of isolated areas by city dwellers, particularly in the desert, and despite the good intentions of the vast majority of these people, there has been a corresponding increase in the threat to all wildlife due to the resulting deterioration of their habitat. The desert tortoise has perhaps suffered the most, and moreover, because of their appeal and their limited mobility, over the years these creatures have been captured by the thousands and taken back to the city where all too many have been mistreated, neglected or allowed to wander out into the street, like Cleo. All this has resulted in the recent enactment of a state law prohibiting their capture; a law which is extremely difficult to enforce.

It has been determined by the wildlife experts where the prime habitat of the desert tortoise is: in a rapidly shrinking area of the Fremont Valley north of California City; bounded by a growing community to the south, a series of expanding alfalfa ranches to the west and north, a dry lake bed also to the north, and the Rand Mountains to the east. This latter has been designated an open area for mining and off-road vehicle use. Furthermore, even this small corner into which the tortoises are being painted is not entirely theirs because of a group of private land-owners scattered throughout the interior.

Add to all this some extensive sheep grazing, deliberate mistreatment, a host of natural enemies including the elements, and being killed on the highways in their ever-widening search for food; and you have a creature whose continued existence is indeed in jeopardy. It is a tragic irony that the California State Reptile is rapidly being denied any place in which to live; at least in its prime habitat!

In an effort to prevent the inevitable loss of this natural habitat, a group of dedicated citizens formed the Desert Tortoise Preserve Committee in June, 1974. This conservation group, which is incorporated, has as its main purpose the establishment of this portion of land as a natural area by acquiring the approximately 17 square miles of privately-owned sections through trade or purchase; and fencing in the total 38 to 40 square miles of private plus natural resource land in question. All this is being done in cooperation with the Bureau of Land Management, the California State Department of Fish and Game and various conservation groups, such as the nationwide Nature Conservancy. The Preserve will also be used for educational purposes by means of guided group tours and interpretive displays, in addition to the currently available slide programs presented by Committee members and the Bureau of Land Management.

The Committee has been financing this project through the sale of appropri-



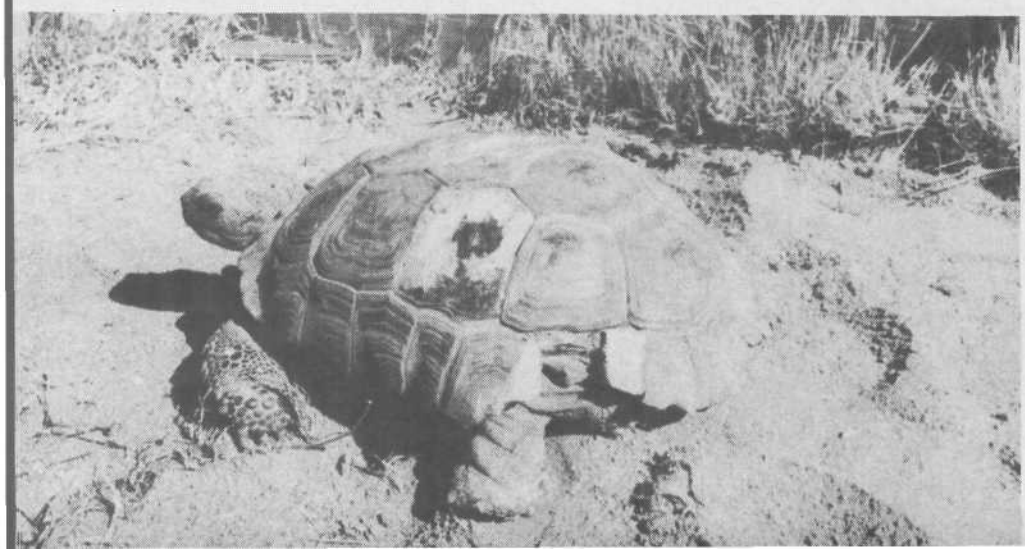
Female lays eggs [one visible behind left leg] in hole dug with hind legs, then covers them with dirt, as shown here. Photo by Michael Davis.

ate, cleverly designed T-shirts, wind chimes, pendant necklaces and bolo ties. In addition, many concerned individuals and groups have sent in contributions, which are tax-deductible; however, there is a need for still more.

This cannot be said too often: you are urged NEVER to pick up a wild tortoise, except very gently, and only for the purpost of taking it off a road; preferably about 100 feet away in the direction in which it was going. A frightened tortoise may give you an unscheduled shower which is not funny, because, particularly in a dry year, this could cause its death from dehydration during the summer or later in the year when it is hibernating. The one exception to this rule would be if you found one which had been run over or otherwise badly injured. Nearly any veterinarian can wire a cracked shell together, and many of them are now specializing in diseases of desert wildlife. There is no known instance of anyone having been prosecuted for aiding an injured animal.

Although it is now illegal to take a wild tortoise from the desert, there are a few ways in which they may be legally acquired for pets. The most common methods include getting one from a previous owner who is no longer able to take care of it, or simply having one wander into your yard and take up headquarters there. In any case, you must write to the California State Department of Fish and Game in Sacramento for free license tags, describing the manner in which you came into possession of each tortoise. In other states, check with your state wildlife department for information about its regulations.

Obvious mistreatment by captors, who pried off a "tile" or scute and painted shell. Missing shell section behind leg suggests animal may have been attached to a chain



Conversely, a little known fact is that while you should never take a tortoise from the wild, neither should you return it TO the wild after it has been in captivity for any length of time, partly because it has become spoiled and accustomed to being fed, and also because it has lost the sense of fear that it must have in order to survive. In addition, some of them will have incurred runny noses or other diseases which could be transmitted to the native population.

As legally acquired pets, they are charming, lovable, easy-to-care-for additions to your family; each with its own distinct personality. Moreover, they will never bark, yowl or otherwise disturb the neighbors! If you are blessed with a large fenced-in yard with an abundance of clover, dichondra, milkweed, dandelions, buttonweed, alfalfa, grape leaves and various other plants including some desert varieties (if they'll grow where you live), you are ideally situated to care for tortoises with a minimum of effort on your part. Their menu can also include varieties of lettuce, notably romaine, but only in addition to other items richer in food value, such as broccoli, turnip greens and any other vegetable or fruit, including melons that you can persuade them to eat. As with people, their tastes differ. You should avoid solid carrots or anything else they might choke on. A good food chopper or grinder can be useful in preparing their food, especially for small tortoises. They rarely chew anything, but simply bite and swallow, using their human-like tongue to propel it into the mouth. It is not necessary to hand-feed them, although it is nice occasionally, but when leaving them a pile of lettuce (about half a large head of romaine for an adult tortoise once or twice a day), put a heavy weight such as a flat rock or brick on one end of it to hold it in place while the animal pulls on it. However, keep in mind that lettuce alone does not provide sufficient food value. If your tortoise shows symptoms of diarrhea, a change of diet is indicated.

Your pets will undoubtedly dig their own burrows for shelter, if the type of soil and ground cover in your yard permits. If not, grab a shovel and start one, preferably at the base of a bush, and the animal will take it from there. They sleep

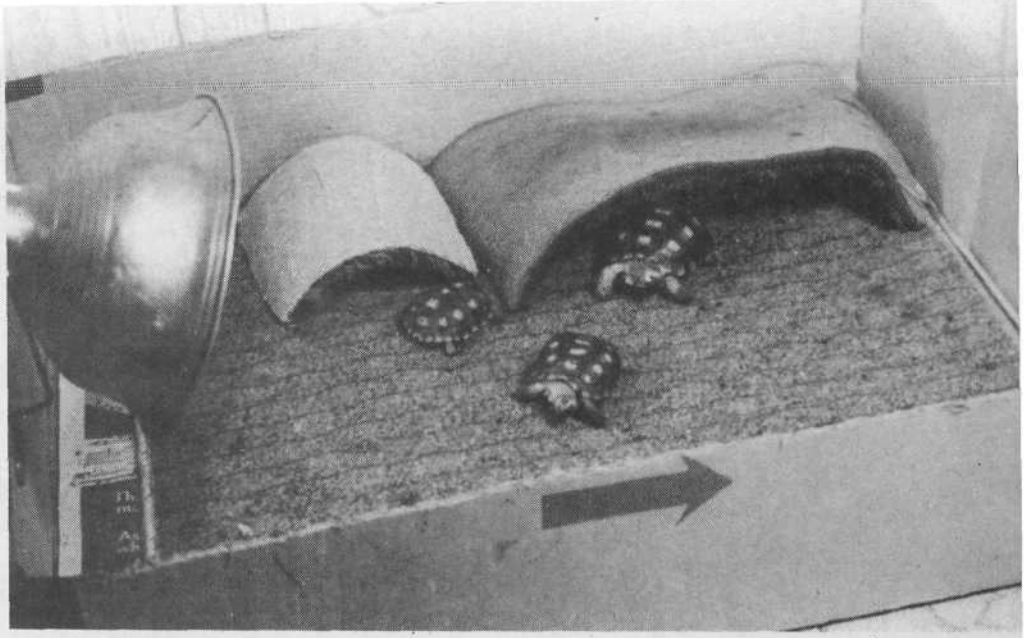
most of the time, particularly during the heat of the day, and should always have some shade on hand; also a shallow container of water sunk into the ground, although not all of them will drink it. A contented, well-fed tortoise will rarely make any serious effort to escape, and a good block wall fence should provide adequate security, even against theft. The old practice of drilling a small hole in the edge of the shell and attaching a chain to it is nothing short of barbaric, and a large tortoise can break off this portion of its shell to gain its freedom. An animal should be a pet, not a prisoner.

A word of warning, particularly if you must leave your tortoise unattended for several hours: beware of booby traps! Be sure that there is nothing it can fall off of, get tangled up in or get caught under or between. A pet tortoise on its back may find it impossible to right itself, unless there is a solid object close enough to push against for leverage, and it would be dead within a few hours from the hot sun or from pressure on the lungs.

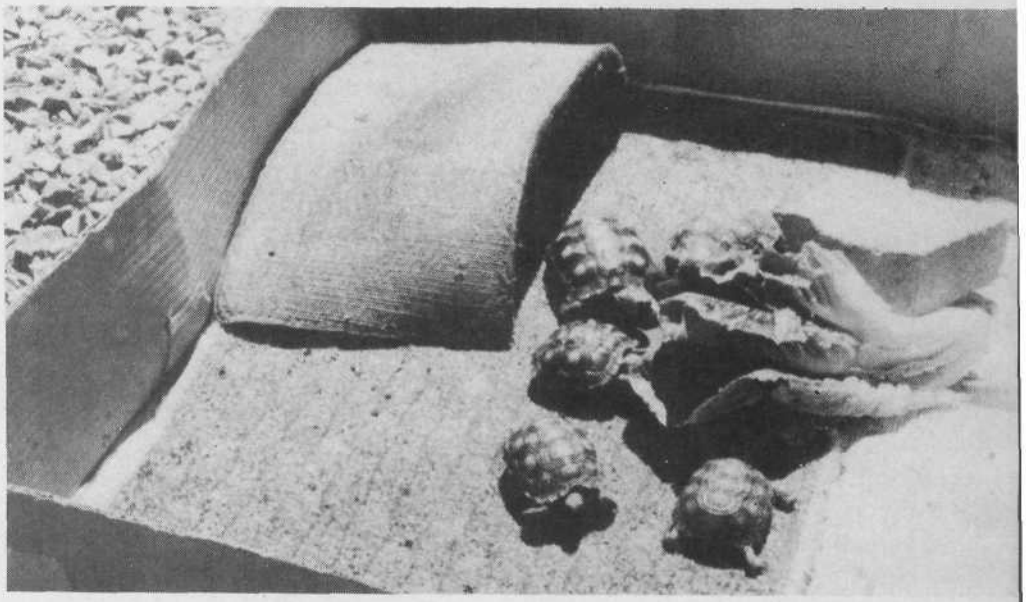
If you live in an area foreign to their natural climate, tortoises must be kept indoors except during ideal weather (65 to 85 degrees), and always at night and during the winter hibernation period (generally from mid-October to mid-March; longer in cooler climates). Around 55 degrees is considered just right for hibernation, and in the fairly warm but damp areas of Los Angeles and the San Joaquin Valley your garage might be just the place for it. Another reason to make house pets of them is if you have no ideal place to keep them outside without constant supervision. A good way to keep them indoors is to fashion a burrow out of a rolled-up carpet inside a box with an open end, to which they will quickly adapt. These are fairly clean animals and will rarely get their boxes dirty, but have an extra rug handy for a replacement whenever it is needed. When feeding them indoors, a goodly supply of old newspapers will solve the sanitation problem, which generally arises during and immediately after mealtime.

It is very difficult to tell the sex of a tortoise until it is nearly grown (around eight inch shell length), but the signs do emerge along the way, and the breed-

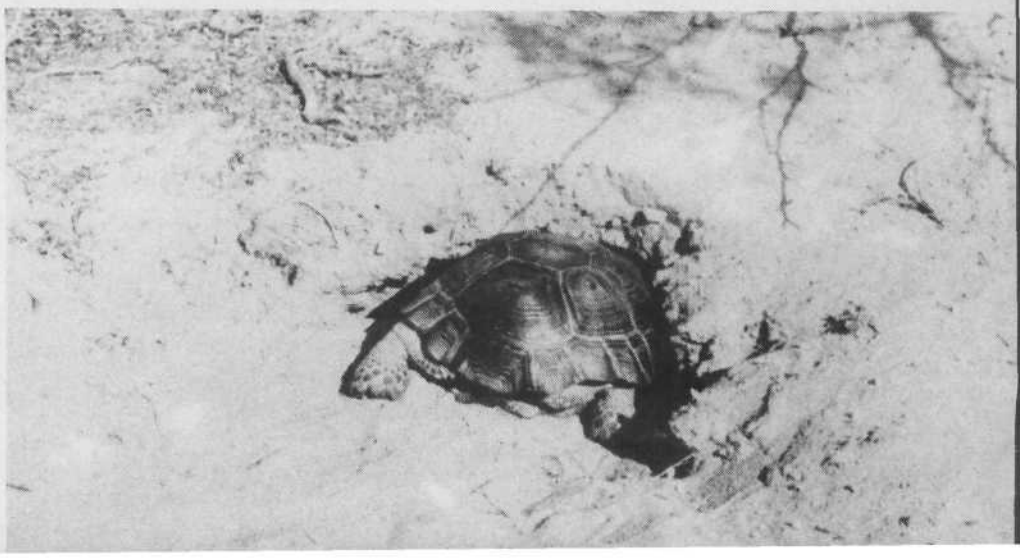
Continued on Page 37



Above: Baby tortoises should be kept indoors in a good-size box—where they won't be stepped on—with a piece of carpeting for shelter. Below: They should be taken outdoors on warm, sunny days and watched carefully or placed in a small enclosure.



Tortoise fits entrance to burrow like a cork in a bottle, but there is room inside to turn around. The burrow is enlarged by using the paddle-shaped front legs.



PALM OASES OF THE CALIFORNIA DESERTS

Pushawalla Canyon

by DICK BLOOMQUIST

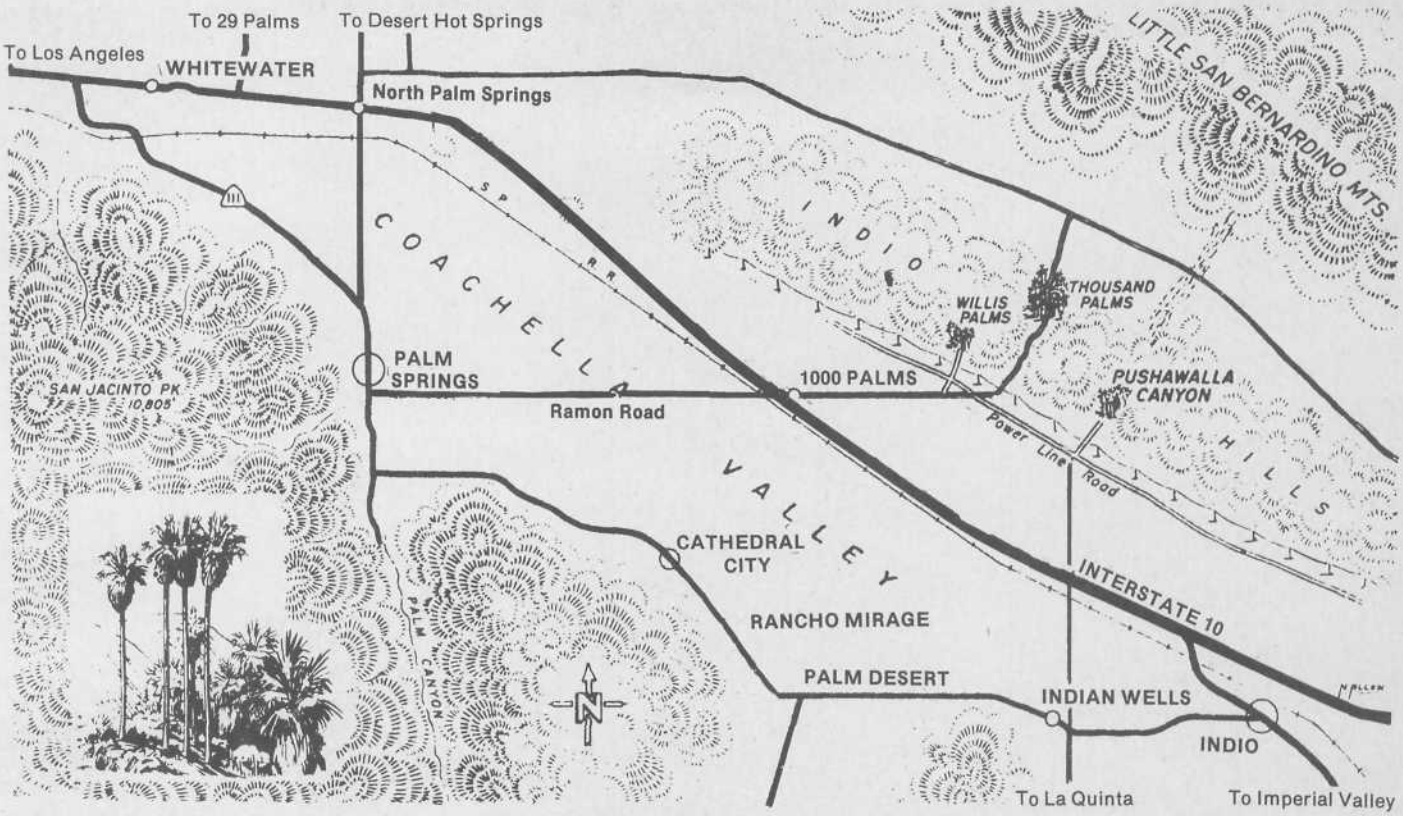
OUR LEISURELY *pasear* to desert places where palms grow wild begins in the low-lying Indio Hills, that narrow, buff-colored range bounding the Coachella Valley on the northeast. Centuries ago the waters of vanished Lake Cahuilla lapped the southern tip of these hills down near Biskra Palms; the communities of Indio, Coachella, Thermal, and Mecca are built on land once covered by the ancient fresh-water lake. The great San Andreas fault parallels the western edge of the Indio Hills, providing water for numerous palm groves.

Our goal, Pushawalla Canyon, lies near the center of the hills. Although on paper the oasis has been set aside as a Riverside County park, no developments have as yet intruded upon the natural scene. No signs point the way to the canyon, but it can easily be located by observing nearby landmarks. Driving east on Ramon Road from the town of Thousand Palms, the motorist will past, in this order, Willis Palms, the paved road to Thousand Palms Canyon, and Hidden Palms. The first canyon beyond Hidden Palms is Pushawalla.

A rocky road — one best attempted on foot if the traveler lacks pickup truck or four-wheel-drive — climbs the bajada (outwash plain) below the Indio Hills, enters the ravine, and ends a few hundred feet from the oasis. On the bajada I noted scores of palm trunks, the remains of trees flushed out of the canyon by the storms of centuries. Nearly one-half mile into the hills, I parked my four-wheeler at a fence installed to stop vehicles, but not hikers, and continued up the arroyo afoot.

Rounding the first bend beyond the

The lush plant life at Pushawalla Canyon attests to the availability of underground water. Although highly alkaline, plants and wildlife abound. Photo by George Service of Palm Desert, California.



fence, I suddenly came upon a knot of Washingtonias and a tiny stream of water; a tunnel penetrated the right side of the ravine for some 15 feet at this point. Here was a classic desert oasis. Had the palms extended a few more feet downstream, they would have been visible from a distance, and with field glasses could have been seen even from the valley floor. As it was, they remained hidden until the last moment. The sheltering canyon — uninviting, even forbidding in the eyes of many motorists speeding along paved roads a few miles away — became a place of delightful surprises, color, and beauty when seen close-up and on foot. This "hidden" quality, this quality of surprise, will distinguish most of the oasis along our desert trail.

The palms advance up the arroyo in a gentle S curve for a mile or so. Most of the trees at the lower end of the defile are full-skirted, whereas many farther up have had their trunks burned. I counted 425 palms, but this was only an approximate census and did not include seedlings or young trees up to four or five feet tall. Judging by the large number of youngsters, the oasis would seem to be increasing in size at present. The tallest trees were perhaps 40 to 45 feet in height.

To me, the loveliest spot in Pushawalla Canyon is the uppermost group of palms, where lush vegetation and flowing water have fashioned a garden in the desert. The palms form a small forest here; they are joined by mesquite, arrowweed, willow, cottonwood, tamarisk, carrizo (common reed), and cattails.

Just beyond the last palms, a rocky gully comes in on the left, furnishing an easy route to the summit of the mesa which borders Pushawalla Canyon on the northwest. The prospect from the top is more than worth the short climb: San Jacinto Peak and San Gorgonio Mountain, both well over two miles high, rise to the west and northwest; the Santa Rosa and Little San Bernardino ranges, Coachella Valley, and a corner of Thousand Palms oasis complete the panorama.

I found a faint trail — probably first trod by the Cahuilla Indians — and followed it for two miles toward the privately owned Thousand Palms grove. At least one pathway through the Indio Hills is bordered by aboriginal stone circles and trail shrines (piles of stones), but I found nothing along this one.

Returning to Pushawalla, I rested in the shade of the upper palms. Bees played over the little stream, their droning and the sound of the water adding to the languid mood. It was late afternoon now; shadows were lengthening and colors were growing more mellow. Many of the most appealing attributes of a desert palm oasis are blended together at Pushawalla: stately palms with their shade and rustling fronds; water and lush plant life; an untarnished natural setting with its gifts of beauty, serenity, and mystery. With such qualities Pushawalla Canyon is indeed a fitting place to begin our desert Odyssey. □

Mileage Log

(Note: Mileage figures are cumulative; allow for odometer variations. Hiking distances on all logs are one-way.)

- 0.0 Junction of Interstate Highway 10 and Ramon Road near community of Thousand Palms in Coachella Valley (Riverside County). Drive east on Ramon Road toward Thousand Palms.
- 3.7 Pass Willis Palms on left.
- 4.3 Junction with Thousand Palms Canyon Road. Continue straight ahead on Ramon Road, passing Hidden Palms on left.
- 6.2 Junction. Turn left onto partially paved power line road.
- 6.4 Junction. Turn left onto dirt road. Pickup truck or four-wheel-drive required.
- 7.7 Road ends at fence across canyon. Fence was installed to halt motor vehicles, not hikers. Palms begin *about one-tenth of a mile beyond* barrier. Elevation at oasis approximately 400 feet above sea level.

Festival Time

YOU DON'T have to travel thousands of miles to visit Arabia and to see handsome shieks and pretty damsels of the Sultan's Court and Queen Scheherazade and her Court of Beauty.

All of these spectacular pageants will be presented in Indio, California during Riverside County's 1977 National Date Festival, February 18 through 27. During these 10 days the community celebrates the Arabian Nights theme with the residents dressing in colorful costumes of the Near East.

Since its inception in 1947 as a small county fair, the National Date Festival has increased in size each year until today it attracts thousands of visitors from throughout the United States. And because of its spectacular displays and pageants, it is one of the most photographed expositions in the nation.

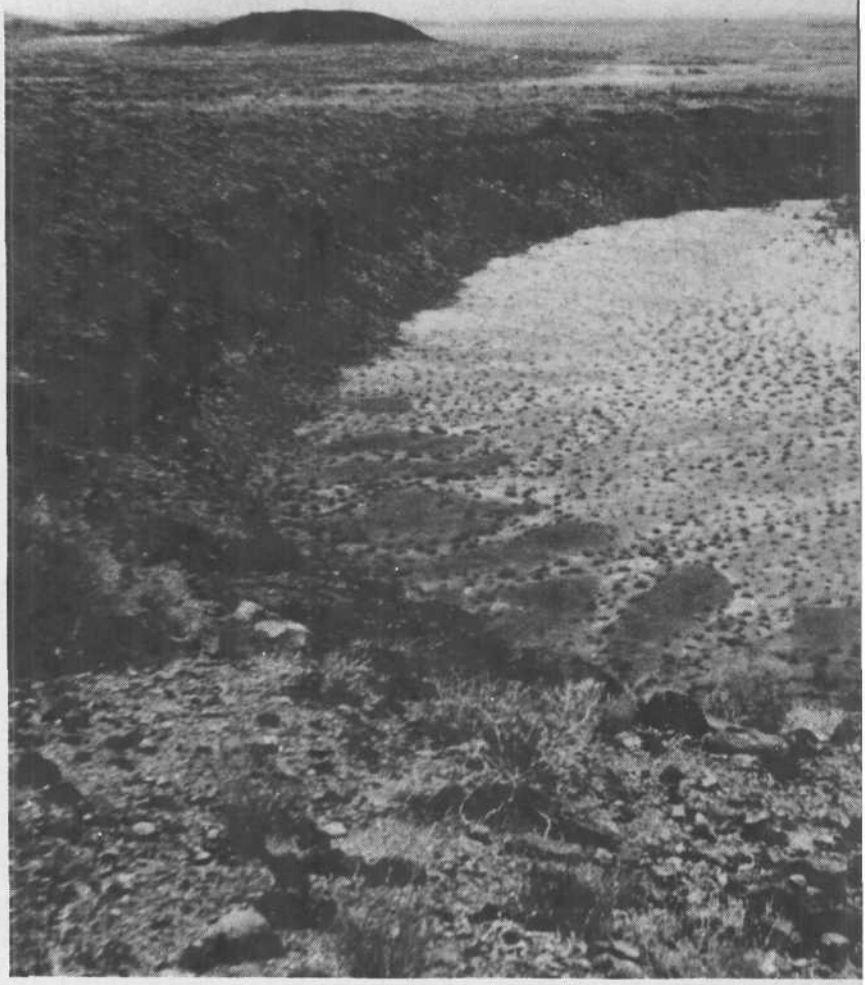
Dates and citrus are shown in colorful displays along with a varied collection of desert dry arrangements in the floriculture area. A fine arts department features desert paintings, and the annual rock show is considered one of the best in the West.

On the outdoor entertainment side there big arena shows featuring the nation's finest show horses, plus camel and elephant races. There is special entertainment every afternoon on three stages, and the Arabian Nights Pageant is performed nightly.

Indio is located in Coachella Valley, the nation's major date producing area. It is approximately 125 miles from Los Angeles via Interstate 10 and State 111. Daytime temperatures in the area are in the 80s during the day, but drop to the middle 40s during the night, so warm clothing is advised while watching the outdoor pageants.

Above: Two pretty Princesses are fascinated by this mineral display case to be shown at 1977 National Date Festival's big Gem and Mineral Show. Below: Pretty Princess admires geode display

Celaya Crater from the west rim. Photograph by the author.



Pinacate—Mexico's Newest Natural Park

by CARL ALLEN

ON NOVEMBER 11, 1908 Dr. Daniel T. McDougal led a party of 10 men, 17 horses, three dogs and two wagons into the Pinacate volcanic field on the first exploration of that unknown corner of Mexico. In 1951, Randall Henderson's article is *Desert* described the area as still almost unknown, and accessible only by four-wheel-drive or on foot. Today, thanks to the wisdom of the Mexican government, a million acres of this wild and desolate territory have been set aside as "Parque Natural Del Pinacate." Roads have been graded, guideposts erected and, for the first time, the Pinacates are becoming accessible to the ordinary traveler.

My wife, Jaclyn and I visited the Pinacates last March, attracted by descriptions of the regions's renowned volcanoes. We left with a new respect for this desert and a sincere belief that the Mexicans have, in their new natural park, a treasure well worth preserving.

We left our home in Tucson and followed the highway past Kitt Peak National Observatory, the Papago reservation town of Sells, to Organ Pipe Cactus National Monument. The MacDougal party, as described in William T. Hornaday's classic book *Camp-fires on Desert and Lava,* took four days to travel this route. Our driving time was three hours. Organ Pipe, which served as our base camp, was established to preserve a part of the unique Sonoran Desert ecosystem, which features the impressive Organ Pipe cactus. This out-of-the-way National Monument has been "discovered" in the last few years. The 250-space campground was nearly filled with camping rigs — their owners obviously enjoying the warmth of the desert sunshine.

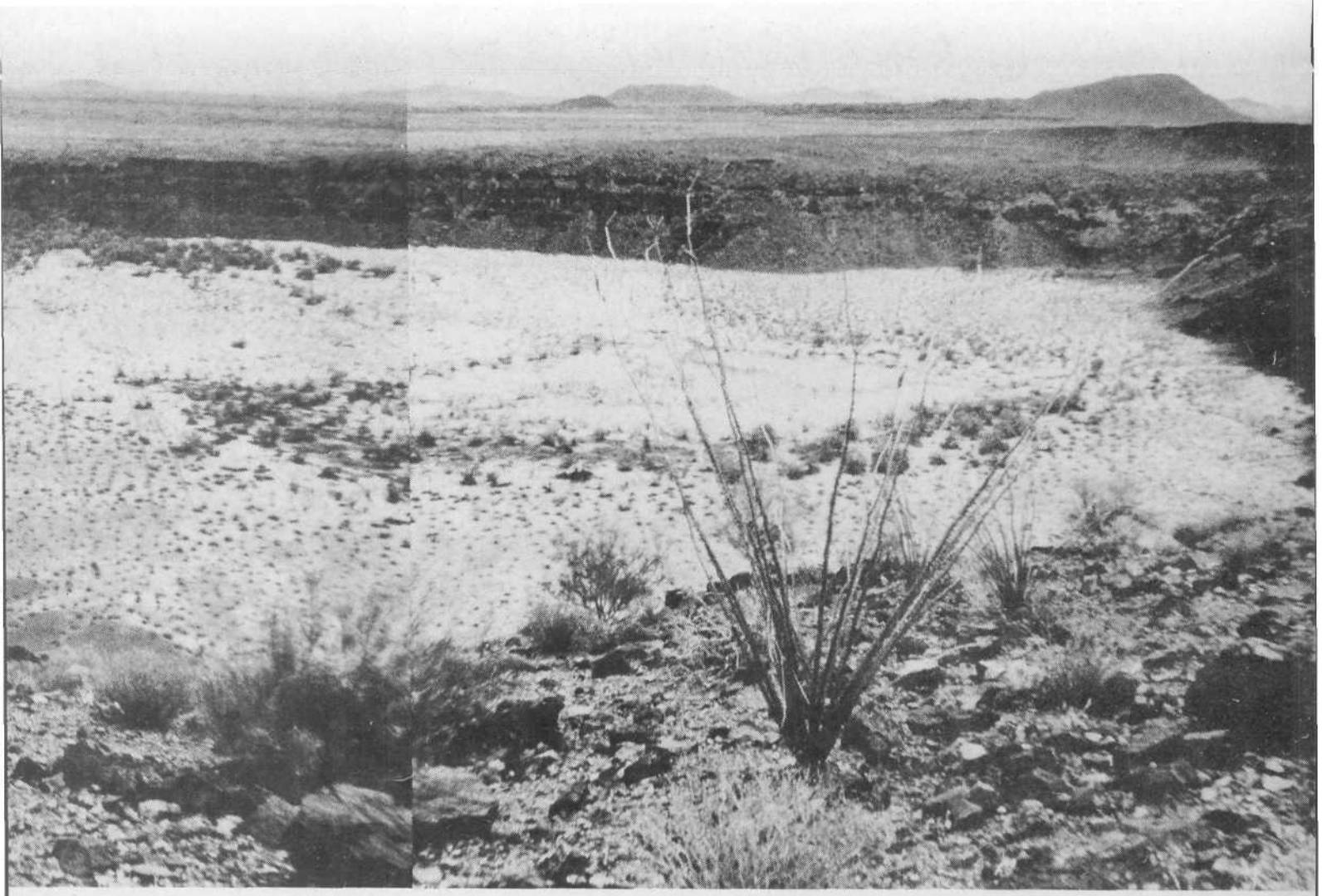
Just outside of Organ Pipe the border town of Lukeville caters to tourists on the American side. Food, lodging, gas and Mexican car insurance are all available. We crossed the border, obtained our Tourist Permits, and headed south.

At the town of Sonoyta, a few kilometers from the United States border, the road to Pinacate divides. Mexico Route 8 runs south to Rocky Point, the fishing village and resort on the Gulf of California. Route 2 closely parallels the border, running west to San Luis, near the California-Arizona line. The Pinacates can be entered from either road, and a great deal of interest can be seen from the highways themselves.

Leading south from Sonoyta, Route 8 crosses a stretch of Sonoran desert not unlike that found at Organ Pipe. Small mountain ranges rise abruptly from the flat bajada, with an occasional saguaro to break the monotony. The road is good and well-traveled, especially by Americans heading for the sun and surf at Rocky Point.

The highway skirts the gray granite of the Sierra Blanca mountains and crosses the floodplain of the Sonoyta River. Contrary to many maps, the Sonoyta does not flow into the Gulf of California. Like its larger neighbor, the Colorado, the last trickle of the Sonoyta river sinks into the baking sand of this floodplain.

At this point the scenery along the highway undergoes a striking change. Floodplain and cactus are replaced by low dunes of windblown sand from the Gulf. The Pinacate volcanoes are bounded on the south and west by the sands of El Gran Desierto. A small group of Indians, the Hiatit Ootam, or sand people, lived among these dunes until the 1850s, when an epidemic of yellow fever



killed many of their number and drove out the remainder. Carl Lumholtz, in his book *New Trails in Mexico,* recounts one of their legends about a flood that covered the world. The Indian diety Iitoi, or Elder Brother, rode out the flood in a boat made of greasewood, finally coming to rest on Pinacate Peak as the waters receded. The sand dunes, with their scattered Indian campsites, are included within the National Park.

The highway west from Sonoyta, Route 2, penetrates the volcanic field proper. This well-traveled route, the only road from eastern Mexico to Baja California, crosses a long stretch of Sonoran desert and then leads onto black lava flows. Pinacate Peak still looms distantly to the south, but smaller lava buttes and cinder cones dot the nearby landscape.

Just to the north of the highway lie two short ranges of granitic mountains, each of which has been subjected to a striking geologic insult. Black fluid lava, apparently welling up along cracks in the granite, broke through the tops of these mountains and spilled down the sides. Hornaday described the more eastern of these features, christened "Black Cap Hill," as a rarity among volcanoes. He did not discover the more impressive copy only a few kilometers to the west.

Besides being topped by lava, Black Cap Hill is abutted by windblown sand. Here El Gran Desierto curves around the northwest edge of the lavas. To the west the highway crosses sweeping yellow dune fields, the dunes aligned like straws in the prevailing wind. The sand piles around the bases of the larger granite mountains, and slowly buries the smaller ones. In this hostile environment, though, some life still persists. The white petals of the desert primrose add an occasional touch of delicacy to the scene. Near Black Cap Hill an area of several acres supports a thick stand of cholla cactus, described by Hornaday in 1908 and still impressive to the modern traveler on the nearby highway.

While the traveler who sticks to the highways can experience the fringes of this land of sand and lava, the heart of Pinacate still shimmers in the desert heat, mysterious as ever. In 1908, approach to the main mountain required a well-equipped expedition. With the advent of the automobile access became easier, but not much. A recent investigation saluted "the woodcutters who have, with their dilapidated trucks, a barrel of water, a sack of frijoles, and an abiding faith in God, laid down tracks where no sensible person would have driven an army tank." These tracks lead through Jeep-busting country, without guideposts or maps. Until recently, however, these tracks were the only paths into the Pinacates.

The best of these old roads, and probably the only one which should be attempted with a passenger car, leaves Route 2 across from the Los Vidrios gas station, heading south. We followed a moderately rough track through sand and gravel for about five kilometers, and reached a cinder cone which was being quarried for road fill. Turning left and following a very broken road up a short rise led us to the rim of Celaya, one of the 11 gaping craters which makes the Pinacate field unique in North America.

Celaya is a middle-sized crater for the Pinacates, measuring 88 meters from the rim to the floor and over 900 meters from rim to rim. The inner walls are formed by

Elegante Crater from the south. Photograph by Steve Larson.

steep cliffs of dark basalt, the stuff of Pinacate lava flows, while the floor is covered with yellow windblown sand. Lines of dark debris, radiating from the center like the spokes of a wheel, show where brief desert downpours have carried rocks and gravel inward from the walls. Patches of desert vegetation on the sandy floor tell of sparse underground water. Celaya lies silently under the desert sun, challenging the explorer to explain its existence.

The MacDougal party did not locate Celaya, but they did discover and map several other massive craters nearby. One of the roads being planned for the new park will bring the traveler to two of these features, MacDougal and Sykes craters, named for members of the 1908 expedition. This road will also pass Tinaja Papago, Papago Tank, one of the natural water catch basins which once meant the difference between life and death in this desert land. The MacDougal expedition used Tinaja Papago as one of their base camps for their assault on Pinacate Peak.

The Pinacates in 1908 turned out to be good country for big game hunters. Prong-horned antelope and mountain sheep were abundant and showed little fear of humans. Trucks, high-powered rifles and even machine guns have decimated the big game population in modern times. One of the hopes for Parque Natural Del Pinacate is that the few remaining animals can be preserved. This park, adjoining Arizona's Cabeza Prieta Game Range and Organ Pipe Cactus National Monument, will increase the protected range for the antelope and sheep, perhaps allowing them to stage a comeback.

The Mexican plan for their park seems to place it somewhere between the American concepts of a national park and a primitive area, with some development on the fringes. All-weather roads are planned to a few of the spectacular natural features, and a resort on the Gulf, near the village of El Golfo de Santa Clara, is anticipated. At present, however, the only work has been the grading of roads in the park's northeast section.

Along both Route 2 and Route 8 large signs proclaim the new park. Near each sign is a guard shack, generally not occupied, and a good dirt road leading into the heart of the volcanic field. These roads, which are connected, were perfectly passable in our Pinto. For the careful driver a few kilometers of travel are amply rewarded.

We chose to start this road from its northern end, off Route 2. Recently-erected guideposts indicated our goal — Crater Elegante. The first few kilometers led through Sonoran desert country, with lava and cinder cones close ahead. Near one of these cones, which was being quarried, the road suddenly widened to about four lanes and a wind sock appeared. The U.S. Border Patrol later confirmed our suspicions that this dirt airstrip was an occasional staging point for airborne marijuana smugglers. No smugglers were in evidence that day, and we proceeded south.

Off to the left a large pink cone with a raised south rim broke the horizon. The resemblance to Hawaii's Diamond Head was striking, and not coincidental. This cone, Cerro Colorado, was formed by small fragments of volcanic ash, and the raised rim reflects a prevailing north wind. A branch of the road, conveniently marked, leads to this striking pink cone.

Like most Pinacate visitors, however, our goal was Elegante. Our road led

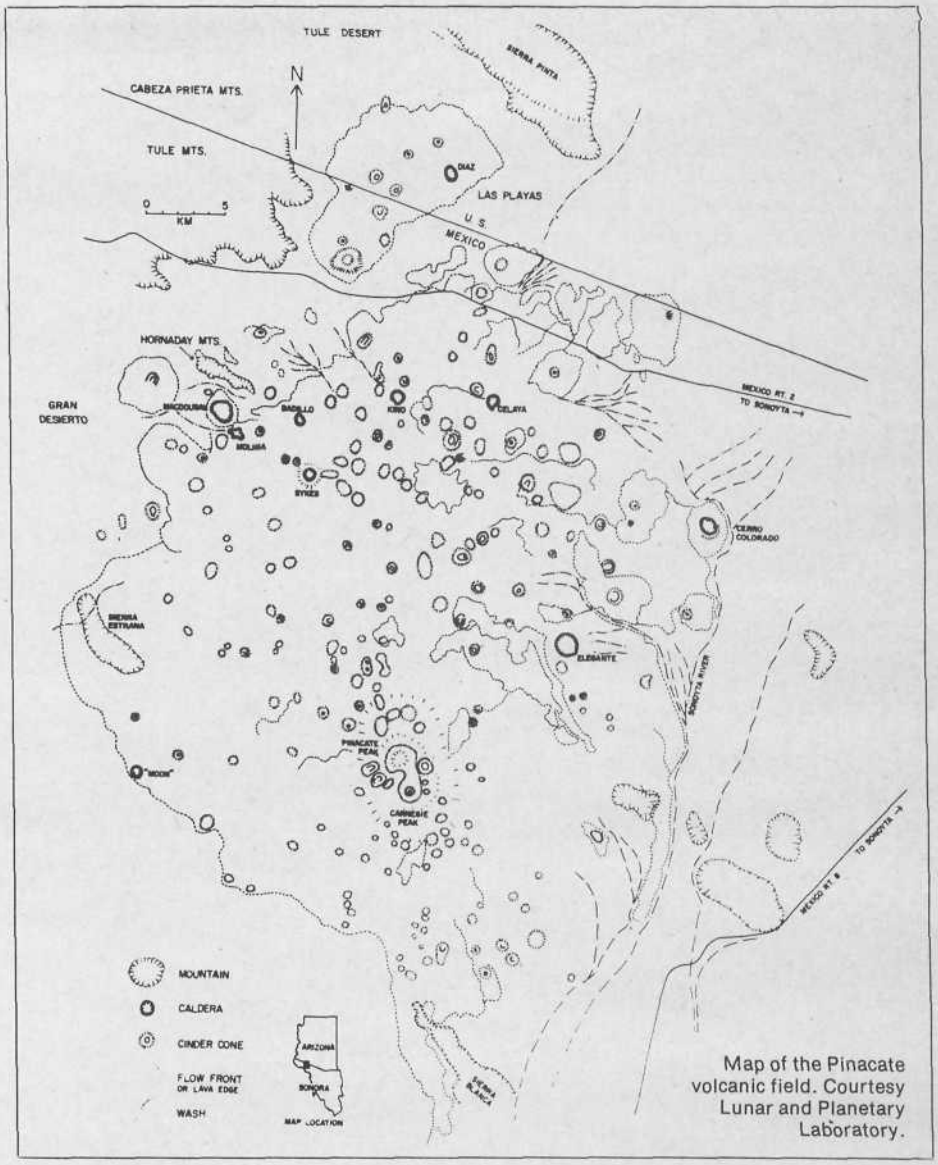
around the edge of a very rough, black lava flow, with jagged blocks towering above the car. We drove across a dry wash and up a ridge to a bulldozed parking area. A trail led up the ridge, passing through a natural garden of ocotillo and cholla. Rain must have preceded us, for the red ocotillo blossoms were out in all their glory. Against the black lava and gray-brown ash the red and green of ocotillo blossoms and leaves and the yellow of the cholla were beautiful.

After Celaya we had some feeling for what to expect, but the crater which Lumholtz named Elegante was still stunning. Here the walls dropped almost straight down for some 240 meters. The far wall was over 12 kilometers away. The basalt cliffs looked much steeper and less eroded than those of Celaya, while the bottom appeared to be covered with the deposits of a dry lake. The eastern wall was dominated by a long stream of red cinder, part of a small cone which was sliced open when the main crater was formed.

For the hardy soul with good boots and plenty of water, the climb to the bottom of Elegante is indeed possible. Randall Henderson's article shows one route, and others can no doubt be found. The climb requires about four hours, each way.

What happened here? What forces within the earth formed these great craters, now so silent? Geologists do not yet have all the answers, for much work still remains to be done in the Pinacates. Recent studies of the craters, however, suggest what may have occurred.

About 20,000 years ago the crater called Elegante did not exist. In its place were only flat-lying layers of basalt, the results of older lava flows. Below the surface, though, molten rock was rising. The heat of this rock caused gas, and possibly steam, to explode through the overlying basalt, creating a small volcanic vent, forming a cone of gray-brown ash and tuff, some of which can still be seen making up the crater's rim. At about the same time a small cone of red cinder erupted near the main vent. The main ash eruption continued, emptying an ever-expanding underground volume



Map of the Pinacate volcanic field. Courtesy Lunar and Planetary Laboratory.

Black Cap Hill—fresh lava erupted right through an older granite mountain. Photograph by Steve Larson.

Ocotillo and cholla on the north rim of Elegante. Photograph by the author.

and breaking the overlying rock along a series of cracks which circled the vent. Finally the weight of the rock and ash above became so great that they collapsed into the underground chamber, with the rock breaking along these circular cracks. The last collapse formed what is now the crater wall, and sliced right through the small red cinder cone. During the wet climate of the last Ice Age a lake formed in the bottom of the crater, but when the climate became drier this lake disappeared, leaving behind its load of sediment. For over 10,000 years the crater has remained, virtually unchanged through most of the history of civilized man.

Mexico's intention to open the Pinacates and preserve them as a natural park represents a great gift to all those who love and respect the desert. We should show our appreciation by aiding this effort in any way possible.

Planning a trip to the Pinacates? A few precautions will make your adventure safer and more rewarding:

1. Park or no park, this is wild and desolate country. If you get into trouble you will have to get yourself out. Make sure the car is ready with gas, water, a good battery and a good spare tire. Extra gas, water and fan belts can come in awfully handy. The roads are cut into soft sand and cinder in places, so be prepared with boards and a shovel to dig yourself out. Driving at night or right after a rain will almost guarantee that you will get stuck.

2. Stay on the roads, for your own sake and that of the park. Tearing up the desert is just not fair to those who follow you.

3. Temperatures on black lava in the summer can hit 130 degrees. Take precautions against the heat and always carry water. The natural water tanks in the Pinacates are often dry and some have recently become polluted by cattle.

4. An American citizen in Mexico is a foreigner. The language, customs and laws change when you cross that border. Check with a Mexican Consolate or Tourist Bureau for information on Tourist Permits and car insurance. It is illegal to transport firearms into Mexico without a hunting permit. Recently there has been some trouble with CB radios in Mexico, so it is best to leave the rigs at home.

5. The Pinacate region is beautiful, fascinating and awesome. The Mexicans are now trying to preserve this place, and at the same time make it more accessible to all those who love the desert. They deserve our thanks and our help. □

DESERT TORTOISE

Continued from Page 27

ing age begins at around nine inches. The male is a "squareback," with a sharp, almost right-angle drop at the back of the shell, a tail nearly three-quarters of an inch long and usually raised to one side, a concave bottom shell and "jowls" or pointed glands on each side of the chin. The female is a "fastback," with a much more gentle slope at the back of the shell, a tail length of only three eighths to one half inch, a flat bottom shell and no chin glands.

If you are blessed with one of each, you may witness their courtship, principally during the month of April but sometimes earlier or later, depending on the weather and other factors. The male will nod his head repeatedly to the female and corner her by biting her front legs; producing an understandable reluctance on her part, but that's how it all starts. Then, about two months later she will become restless, refuse to eat and dig a number of holes with her hind legs only, around bushes, etc. In about three days she will dig one hole for several hours, lay four to six eggs (sometimes more), and carefully cover them up with her hand legs. Then she simply walks away, and shows no further interest in the whole project. Around late August or September, depending on the weather, the baby tortoises, which are called hatchlings, will somehow hatch themselves out of the eggs and out of the ground; tiny, adorable replicas of their parents with shells one and one-half inches in length and fully developed down to their toenails. The mother did pack a lunch for them in the form of a sac of food attached to the undershell when they are hatched. This yolk feeds them for a while or perhaps even over the winter, and then eventually disappears, but otherwise, they are completely on their own, being born with every bit of knowledge they will ever need; for there is no one on hand to teach them anything. This is as dramatic a demonstration of the miracle of life as you will ever see.

It is well to pamper them during the first year, keeping them mostly indoors except under close supervision; being on the lookout for ants, which can blind them. Most experts recommend keeping them awake (warm) throughout the first winter. Just be sure you know where they are, because it is easy to step on them!

But young or old, a desert tortoise is a very rewarding and understanding pet that you must expect to have all the rest of your life, and even longer! Therefore, you should name some dependable person as trustee, in the likely event that your pet will outlive you.

For most advice about the care of pet tortoises, the proper disposition of wild ones, and for information about or contributions to the Desert Tortoise Preserve Committee, Inc., including the purchase of its fund-raising products; write to the Committee, care of P.O. Box 453, Ridgecrest, California 93555.

Meanwhile, as in the care of any animal, your best guide is your own common sense; keeping in mind the one most important thing to which nearly every creature will always respond: Love! □

(The author gratefully acknowledges the assistance of Dr. Kristin Berry in preparing this article.)

Squawbush—It's for Eating and Weaving

by LUCILE WEIGHT

A SPECIES OF Rhus is so well known for its use in basketmaking that its importance to Indians as food may be overlooked. Its very name, Squawbush, may stop further inquiry by those interested in how Indians lived off the land. Also since birds eat the clustered sticky fruits, and the shrub is deciduous, this Rhus goes unnoticed much of the year.

The squawbush, or three-lobed sumac, is one of several species of Rhus in the Sumac family. Several of them are called the lemonade bush, but one species has such a reputation that many have not become acquainted with its attractive relatives. This "poison oak," or *R. diversiloba,* actually is quite different, including its whitish berries. I would have been repelled by anything named Rhus if I had not already met its relatives.

First there was *R. integrifolia,* clinging to the sea cliff edges of Point Loma, a low spiky branched shrub with little leathery leaves that resisted the salty winds. It would bloom late in the year or in winter, its pinky white flowers developing into sticky flat red berries by very early spring. Chewing them on a long hike was refreshing despite some astringency. Soaking in water produced a refreshing drink.

Back from the immediate ocean breezes, *R. laurina,* the laurel-leaved, sprawled large and loose on sunny canyon slopes, nearly always confined to non-freezing belts. Moving east, near the desert brink of the mountains, was the beautiful *R. ovata,* or sugar-berry. Growing with it in part of its belt was one of the varieties of *R. triolobata,* the squawberry or squawbush.

Rhus is the only California genus of the Sumac family. A surprising member of the family is Schinus, the common ornamental pepper tree, from Peru.

Best known variety of squawbush in the desert is *anisophylla,* this name denoting the unequal patterning of the trilobed leaves. These green rather smooth leaves are in small leaflets. They are not fully developed before the flowers appear, often from March to May in desert mountains. The small flowers, pale yellow or whitish or greenish, grow in little clusters. The whole plant may be nondescript, with informal habit of growth. Often it becomes a ragged hedge up to six or seven feet tall along high desert washes. Occasionally a single specimen grows beautifully against granite boulders. The long pliant stems are graceful in their slight bending.

Location sometimes can be spotted in May or June by the activity of pinonjays and mockingbirds, attracted by the bright red sticky drupes or berries. At times the fruits may ripen as late as August.

This variety, although it may be commoner in the Lower and Upper Sonoran zones of California and Arizona, can be found from southeast Oregon, to Utah, New Mexico, into Baja California, and is known in Durango and Jalisco states of Mexico.

Indian women would strip the thin bark-skin from the twigs and branches, then split the slender pliable white lengths into a few strands, which sometimes were dyed. If devil's claw (Martynia) was available to use for weaving in the black patterns, the dye step could be omitted. One kind of squawbush basket made by the San Luisenos of Southern California was the fan-shaped one for beating seeds into a gathering basket. The same bush was used not only by basketweavers of the southern desert mountains but the Panamints, and by the Pahutes of Nevada; and in Arizona by the Apache, Navajo, Pima, Maricopa, Hopi and Havasupai. The willowy stems were used for baby cradles by the Hopi and possibly by others.

Nearly all parts of the plant were used in some way by the Indians. A decoction of leaves produced a dye for basket-splints, and would blacken the hair. It reportedly was used in shampoo by Indians in Arizona and New Mexico, last century. Several tribes used it in varied combinations as a remedy for stomach and other ailments. Navajos used it as arrow shafts and bow.

Although its greatest value probably was for weaving, the berries also were

important as fresh fruit and in cookery. It was made into bread by Indian women whom L.S.M. Curtin saw during her early youth at Fort Whipple, Arizona. They ground the whole berries, and much later she noted that Tewas ate the fruit whole or ground.

The beverage made from soaking the fruit in water probably is the commonest form. It is sometimes called pink lemonade. Mashing the berries after soaking will extract more of the refreshing flavor. Perhaps a richer taste is obtained by using the berries after they are dried, then ground, and soaked in water overnight. Strain this decoction, add sugar and additional water to taste.

Indians dried the berries for later use, usually grinding them to use as a sweet-sour flavor or as an important component, depending on the proportion of other ingredients.

A version of a pudding made by Pimas and Papagos includes cooked berries thickened by just enough whole wheat flour to thicken, with a little cactus fruit syrup or other sweetening. First mash the berries, put in pot of water, when most of the seeds will sink. Dip out the fruit and slowly cook before adding the flour and sweetening. This will take a lot of berries!

The Apache bread Mrs. Curtin saw probably did not include soda, egg, milk, oil, brown sugar and honey, or even whole wheat flour. But ground dried squawberries added to such a bread would give a wild and tantalizing fragrance and flavor.

The ground berries can be added to sugar and water for a jam, or the juice from soaked ground berries can be strained and added to other juices to make jelly.

Navajos had a simple way of grinding the whole berry with a little sugar, then adding some water, for a drink. Or the ground berry was cooked with cornmeal (masa) into a sort of gruel or atole.

If you can't find your own berries for experimental cooking, perhaps you can grow some. According to the noted authority of shrubs and trees of California, Howard E. McMinn, "The spreading habit, colored fruits, and ease of propagation from stem-cuttings and root-sections recommend this plant for mixed plantings of native shrubs." And another writer who recognized its attractiveness in landscaping is Lester Rowntree, whose books, *Flowering Shrubs of California* and *Hardy Californians* are standards. Lester, who wrote hundreds of horticultural articles published in the U.S. and Britain, learned about squawbush and many others of chaparral and desert as she camped alone in remote desert canyons, in mountains and along sea bluffs, starting in the 1902s. She incorporated knowledge so initmately gained into her later books for juveniles, some of them written in the high desert. As of the fall of 1976 she was still living, at age 93, in her Carmel Highlands aerie where she bought land more than 50 years ago and where she has grown a fabulous wild garden, a mingling of desert and mountain species. □

Above: Squawbush, loaded with ripe drupe-berries, as it often is seen as a low shrub in sandy washes of high desert. At times it may grow in tall hedge along sandy water courses. Right: Berries of the Squawbush, a Rhus, in clusters a tips of branchlets. The lobed leaves are irregularly three-patterned. Photos by Harold O. Weight.

Rambling on Rocks

by
GLENN and
MARTHA VARGAS

SOUTHERN BRAZIL: Filled with Agate

WE RECENTLY had the pleasure of visiting the gem producing areas of Brazil. This country is somewhat the "must" destination of all serious mineralogists. We have had Brazil in this category for many years. The gem producing areas are in two main regions. The largest is in central Brazil, in the State of Minas Gerais and some surrounding states. A smaller one is deep in the southern portion in the State of Rio Grande Do Sul. Our column this month will cover the agates of the southern gem fields.

First, a bit about history, and the peoples in this area is in order. The history of the region really begins in Germany. An area known as Idar-Oberstein contained much agate, and the Germans built up a great industry dying and cutting these. After many years, the agates of the region were all gathered, and a new supply had to be found. Word came back from Brazil that there was a plentiful supply in its most southern state.

A large number of Germans migrated to the region and began shipping the agate to Germany. Those that returned with some of the shipments spoke glowingly of the beautiful rolling hills, fertile valleys and the temperate climate. Soon Italians started going there, and planting grapes. Today, the state is a unique ethnic mixture of Italians farming the hills, and Germans operating the mines. It is actually a bit difficult to find what might pass for a true Brazilian. Virtually all names of business houses are either German or Italian. These people speak Portuguese, but it is a different dialect than spoken in other parts of Brazil.

The Rio Grande do Sul region was once very active volcanically, with light-colored andesitic lavas spewed out into large deep lava flows. The lava was fairly thick, and contained copious amounts of gas entrapped within it. The gas gathered in bubbles of varying sizes, and when the lava hardened, these bubbles remained as empty chambers.

Most bubbles were very small, about the size of a marble or smaller, but many reached the size of a baseball or larger. Most were the shape of a flattened globe, half-way between a hemisphere and a sphere. After the lavas cooled, they shrunk slightly, and tiny cracks made the mass porous. In this condition, it was possible for water to move into the bubbles. Presently, there is some controversy about whether the waters came down from the surface, or up from the deep-seated volcanic heat. We tend toward the latter.

Regardless of how the water moved to enter the bubbles, it carried various minerals in solution. These were deposited as thin layers on the inner surface of the bubbles. The greatest part of the dissolved minerals was quartz, which deposited as agate. Also in the mix were iron oxide (red), manganese dioxide (black), as well as others. Each of these imparted a certain color to the agate, but each was not always present. Thus some agate was deposited in colored bands. Sometimes the impurities were so few that the agate was nearly colorless, or quartz crystals were produced instead of agate. A large percentage of the bubbles were filled with a thick shell of agate, with a central core of quartz crystals. Often these crystals were amethyst, but that is a later story for us to tell.

Some bubbles remained slightly hollow, but in most cases, they became completely filled with agate. The exact process where a bubble in rock can be filled with layers of agate being deposited on the inner surface, is not completely understood. Why subsequent layers do not seal off the entry channels is a mystery. We can look at some

agate slices and actually see the channels through which the liquid entered, but what kept the channels open has not been satisfactorily explained.

We had the privilege of visiting one of the agate mines. We had expected to find a huge deep pit with the usual mining equipment moving vast amounts of earth. Instead, it was a large cut on the side of a large hill. Most of the waste rock was simply pushed over the edge of the hill. The face of the mine was about 100 feet in each direction, and studded with very small agate nodules. Intermixed through these were the larger ones of economic value. Most were well beyond our reach, and would undoubtedly be brought down with the next (we assumed) blast. The floor of the mine was littered with broken pieces of agate nodules that evidently were thought to be worthless. We found ourselves trying to choose between beautiful pieces. We knew we had to take only a few of the best.

The trip to the mine was somewhat unusual. The day was rainy and we had to walk the final mile up to the mine. Our bus waited for us on the main road below. The narrow roadway and its sides were covered with pieces of broken nodules. Some were beautifully banded, others were a nice orange (carnelian), and others a poor gray color. Wet from the rain, they all looked beautiful.

At one point on the road, someone had dumped a large number of broken nodules. One of these was half of an amethyst geode. It was lying open side up. This was well over a foot in diameter, with the pocket of crystals near a foot across. We marveled at it, but knew we could never manage to take it home with us.

When we reached the mine it stopped raining for about a half-hour. During this period, we were able to get some photographs and pick up a few of the agates. When it again started to rain, we headed back to the bus with our load. The collecting had covered our hands with mud. When we reached the amethyst geode we had seen on the way in, we found it nearly filled with water. We had the pleasure of rinsing our hands in an amethyst-lined wash basin!

Many of these agates are still shipped to Germany. They prefer the grayish colored pieces that were referred to as poor above. These are capable of being dyed, and are the mainstay of the German agate industry.

The Brazilians have developed an agate industry also. Many agates are simply sliced, polished and sold as they are. Others are cut in thick pieces and made into pen stands or ash trays. We saw hundreds of thousands of ash trays in the shops. Some agates are baked, turning them into a deep orange or red.

We visited one of the agate cutting shops and watched them polish slices and ash trays. Their machinery is a bit crude, but highly efficient. A sawed slab can be given a respectable polish in less than 15 minutes of work. Workers of both sexes hold the pieces of agate against various types of wheels for only a short period of time. The results amazed us. We will admit, however, that we would much rather spend more time and achieve a fine polish.

The most unusual Brazilian manufacturer makes agate bowls. He takes nodules about three to eight inches in diameter and cuts a succession of bowls from them. When he is through, he has a set of bowls that can be reassembled into nearly the exact size and shape of the original nodule. Each bowl is quite well polished, inside and out, and a small flat is cut onto the base to make it stand motionless. How does he do this? He refuses to tell anyone. He polishes and sells the bowls at a different location from where he cuts them out of the nodule.

We had seen these bowls previously in this country and were thrilled to visit his shop. We went to Brazil thinking we knew how he cut them. While in his shop, we saw a party-finished bowl, and found our ideas were wrong. It is still his secret. □

The Trading Post

• BOOKS-MAGAZINES

GEMS AND MINERALS Magazine. The "How To" magazine for jewelry makers, rockhounds, gem cutters and rock hobbyist. Over 95 pages monthly, 4-color cover and color inside. Sample 50c. Gems and Minerals, Dept. DMM-1, Box 687, Mentone, California 92359.

LIVE LONGER. How to Feel Healthier and Learn the Secret of a Long Life. The book tells how the body aging process can be slowed down. Remain healthy and mentally alert at 80 or 90, even 100 years of age. Send $1.50. Daisy W. Johnson, 6322 S. University, Chicago, Illinois 60637. In Illinois, 5% tax.

GEMBOOKS stocks over 125 rock hobby books covering all interests: Jewelry making, field collecting, minerals, fossils, gem cutting. Write for free catalog. Gembooks, Dept. DMB-1, Box 808, Mentone, California 92359.

• DESERT STATIONERY

MOCKEL'S ORIGINAL Desert Livingcolor Notes. Beautiful Flowers, Scenes or Animals. 12 Assorted, package, $2.00 postpaid. Write Artist, Henry R. Mockel, P. O. Box 726, Twentynine Palms, California 92277.

• HEALTH CARE

SINUS RELIEF! Learn how leading ENT specialists treat nasal phlegm. Booklet, 50c. Hydro Med, 123 South Swall, "D", Los Angeles, California 90048.

• EQUIPMENT

PRECISION LAPIDARY Abrasive Compounds for tumbling, polishing and grinding. Send for free catalogue and price list. MDC Industries, 400 West Glenwood Avenue, Philadelphia, PA. 19140. Dealer Inquiries invited.

• GEMS

SHAMROCK ROCK SHOP, 593 West La Cadena Dr., Riverside, California 92501. Parallel to Riverside Freeway. Phone 686-3956. Come in and browse; jewelry mountings, chains, supplies, minerals, slabs, rough material, equipment, black lights, metal detectors, maps, rock and bottle books.

GEM SHOP WEST. Mineral specimens, custom jewelry, gem identification, slabbing. 72-042 Highway 111, Rancho Mirage, Calif. 92270. Phone 346-2812.

DRILLED KINGMAN Blue Turquoise Nuggets, 9c, 12c, 25c. $1.00 samples. Ultrasonic drilling 4c up. Add 6% tax. Jewels from Linda, 27831 Larkmain, Saugus, California 91350.

ARIZONA HIGHWAYS February 1975 Peridot Necklace 16" tumbled sterling silver clasp $16.00. Apache Arrowheads 100 for $10.00. Council, Rm 1239, Apache Junction, Arizona 85220.

• MAPS

OLD STATE, RAILROAD, COUNTY MAPS. 70 - 110 years old. All States. Stamp for catalog. Northern Map, Dept. DM, Eagle River, Wisc. 54521.

• MINING

ASSAYS. COMPLETE, accurate, guaranteed. Highest quality spectographic. Only $5.00 per sample. Reed Engineering, 2166 College Ave., Costa Mesa, California 92627.

• PROSPECTING

PROSPECT FOR GOLD. Forty acre mineral claim $500.00. Information and map $1.00. Golden Glory Mines, Box 907, Winterhaven, California 92283.

DRYWASHERS! GOLD CONCENTRATORS! Guaranteed to recover minerals, gold. A hobby that pays for itself! Write to: Nick's Nugget, P. O. Box 1081, Fontana, Calif. 92335. (714) 822-2846.

BEAUTIFUL ODD-SHAPED Natural gold just like it came from the earth $2.00. Gold panning packet with instructions $2.00. Prospector Jack Ward, Box 380, Sandia Park, New Mexico 87047.

• REAL ESTATE

SCENIC OCOTILLO, CALIFORNIA. Lots, Homes, Acreage in the Unspoiled West Desert of Imperial County. Bell Realty, 1147 Imperial Hwy., Ocotillo, California 92259.

BIG PROFITS in Real Estate. New report tells you how and where to buy land. Just $1.50. The General Store, Dept. D, 20 Denison Avenue, Stonington, CT 06378.

GOVERNMENT LANDS . . . From $7.50 Acre! Homesites, farming, vacationing, investment opportunities! "Government Land Buyer's Guide" plus nationwide listings—$2.00. Surplus Lands, Box 19107-RB, Washington, D.C. 20036.

HOW TO PLACE YOUR AD

Mail your copy and first-insertion remittance to: Trading Post, Desert Magazine, Palm Desert, Calif. 92260. Classified rates are 25c per word, $5.00 minimum per insertion.

Deadline for Classified Ads is 10th of second month preceding cover date.

• REAL ESTATE

KERN RIVER VALLEY—2.5 acre Ranchos with water—Hi-Desert air—View of Lake Isabella and mountains. Animals ok. John Bayley, 2002 E. Santa Clara, B-1, Santa Ana, Calif. 92701. 714-542-3645.

• TREASURE FINDERS

BURIED TREASURE — Locate up to quarter mile away with ultra-sensitive Directional Locator. Send for free, informative phamplet. Research Products, Box 13441-BUC, Tampa, Florida 33611.

WILL YOU GAMBLE $4.00 to save $200? Build one of several detectors from our 20-page book "Build Transistor Treasure Detectors." Easily followed instructions, $4.00. Trionics, Box 164D, Brewer, Maine 04412.

INSTANT RICHES—Explore ghost towns. Find buried treasure, coins, relics, antiques, and more. Goldak—the finest "Metal and Treasure Locators since 1933." Send for free catalog. Goldak, Dept. D, 727 S. Main St., Burbank, California 91506.

• MISCELLANEOUS

PROFESSIONAL ART BY MAIL—The only one of its kind you have been looking for. Courses approved by California Dept. of Education. V.A. Approved. Send for Free Brochure. Roy Keister College of Fine Arts, 15800 Highland Dr., San Jose, California 95121.

NEW PENDULUMS, one gold, one silver, antenna rods, priced right. Seven-day trial. Stamped envelope, Mercury Magnet, Anson, Texas. Rt. 3, Box 100. 79501.

WIND CHIMES, porcelain $6.50; T-Shirts, blue and white in child's sizes 6-14 $3.75; blue, white, gold, yellow in all adult sizes $4.95; Pendants, ceramic $2.35—all with attractive and distinctive tortoise designs. 50c postage. California residents add 6% sales tax. Free brochures upon request. Your orders will promote the world's only desert tortoise preserve! Desert Tortoise Preserve Committee, Inc., POB 453, Ridgecrest, California 93555.

LAMINATED CB-10 Code and Lingo Card—Fits sun visor. $1.00 each. Norval's Novelties, Dept. B, 2610 Orchard Ct., La Verne, Calif. 91750.

SAFARI KNIFE pocket hunting knife. Heavy duty stainless blade locks open. Over 7" long. Send only $9.00 to: Regep Gift Club, 420A Tilbury Rd., Birmingham, Michigan 48009.

LEARN ASTRONOMY—Take advantage of desert location. Experience the night sky, nature's greatest attraction. For informative report send $5.00 to Lenaham Publishing Co., Box 554-D, Camp Hill, PA 17011.

MAPS!

DESERT OVERVIEW MAPS
Using topographic maps as basic underlays, are two excellently detailed maps for back country explorers of the Mojave and Colorado Deserts. Maps show highways, gravel routes, Jeep trails, plus historic routes and sites, old wells, which are not on modern-day maps, plus ghost towns, Indian sites, etc. **Mojave Desert Overview** covers from U.S. 395 at Little Lake to Boulder City, Nevada, to Parker Dam to Victorville. **Colorado Desert Overview** covers from the Mexican border to Joshua Tree National Monument to Banning to the Arizona side of the Colorado River. Be certain to state which map when ordering.
$3.00 each

ANZA-BORREGO DESERT STATE PARK TOPOGRAPHIC MAPS
A set of 7 maps covering the Anza-Borrego Desert State Park, 8½''x11'' format, spiral bound. **$5.50**

JOSHUA TREE NATIONAL MONUMENT UPDATED TOPOGRAPHIC MAPS
A set of 12 maps covering the Joshua Tree National Monument, 8½''x11'' format, spiral bound. **$7.95**

ROADMAP TO CALIFORNIA'S PIONEER TOWNS, GHOST TOWNS AND MINING CAMPS
Compiled by Varna Enterprises. 38''x25'' and scaled. Southern California on one side and Northern California on the other. Contains detailed location of place names, many of which are not on regular maps.
$3.50

MAP OF PIONEER TRAILS
Compiled by Varna Enterprises, this is their new large map on pioneer trails blazed from 1541 through 1867 in the western United States. Superimposed in red on black and white, 37''x45''. **$4.00**

ROADMAP TO CALIFORNIA'S LOST MINES AND BURIED TREASURES
Compiled by Varna Enterprises, 38''x25'' and scaled Southern California on one side and Northern California on the other. **$4.00**

MAPS OF THE OLD WEST
Printed in two colors on rich Parchment papers; each map has the rustic appeal of the Old West. Hundreds of sites—names, dates and descriptions of places and events associated with the Old West, including ghost towns, old forts, old mines, lost and legendary gold, Indian tribes, battle sites and early trails.

Arizona Lost Mines & Ghost Towns	**$1.25**
Calif. Lost Mines & Ghost Towns	**$1.25**
Nevada Lost Mines & Ghost Towns	**$1.25**
(Each above map 17''x22'')	
The Historic West—23''x30''	**$1.75**
(Includes the 11 western states)	
Arizona Treasure Map—30''x38''	**$2.00**
(Field Map)	

Please add 50c for Postage/handling

Calif. residents add 6% state sales tax

Order from
Desert Magazine Book Shop
P. O. Box 1318, Palm Desert, Calif. 92260

WORTH SAVING!

$4.50 EACH
Including tax and postage

Gold embossed on brown vinyl. Space for 12 magazines easily inserted. A beautiful and practical addition to your home bookshelf.

MOST OF OUR READERS SAVE THEIR DESERT MAGAZINES FOR FUTURE REFERENCE AND READING PLEASURE. THE BEST WAY TO KEEP YOUR BACK ISSUES IS IN OUR ATTRACTIVE SPECIALLY-MADE

BINDERS

DESERT MAGAZINE

P. O. BOX 1318, PALM DESERT, CALIFORNIA 92260

February 1977

REPLACEABLE SUBSCRIPTION FORM

Desert

☐ **Check here if you wish this issue replaced.**

P. O. Box 1318, Palm Desert, California 92260

☐ ENTER A NEW SUBSCRIPTION ☐ RENEW MY PRESENT SUBSCRIPTION

NAME _____

ADDRESS _____

_____ ZIP CODE _____

☐ SEND GIFT SUBSCRIPTION TO:

NAME _____

ADDRESS _____

_____

Sign Gift Card: "From _____

NAME _____

ADDRESS _____

_____

Sign Gift Card: "From _____

One Year $6.00 ☐ PAYMENT ENCLOSED ☐ BILL ME LATER

Two Years $11.00
(Or 2 One Years)

Three Years $16.00
(Or Three One Years)

☐ ALSO SEND DESERT'S 12-ISSUE HANDSOME BROWN VINYL BINDER FOR $4.50 (Includes tax ans postage)
Date Binder(s) with Year(s) ☐ Undated

Send orders to
Box 1318
Palm Desert, California 92260

BOOKS OF

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.

MINES OF THE MOJAVE by Ron and Peggy Miller covers the numerous mining districts running across the upper Mojave Desert from Tropico, west of the town of Mojave, to Mountain Pass, a little west of the Nevada border. Paperback, 67 pages, $2.50.

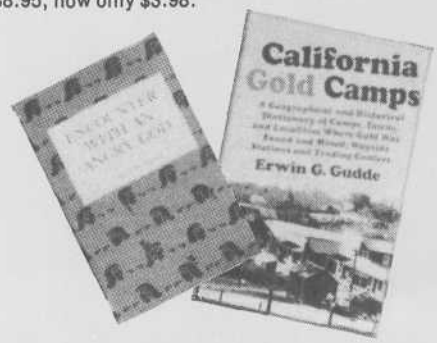
OREGON'S GOLDEN YEARS by Miles F. Potter. Men in search of treasure opened the gates to the wilderness. **Oregon's Golden Years** —with affection and good humor—honors these men and their imperishable lust for gold. Paperback, large format, lavishly illustrated, extensive Bibliography and Index, $7.95.

ROCK ART OF THE AMERICAN INDIAN, by Campbell Grant. This extensively illustrated volume presents an over-all survey of Indian rock art covering an extraordinary variety of subjects, styles and techniques. Identifies motifs and their probably meanings, correlates them with regional and tribal cultures and migrations, and locates major sites of rock art throughout the continent. Hardcover, 178 pages, extensive Bibliography and Index, originally published at $12.95, now $5.98.

THE AMERICAN WEST, A Natural History by Ann and Myron Sutton. A first-hand information-packed description of the plant and animal life and geological evolution of the 15 major natural areas of America's West, illustrated with magnificent photos (71 in color) and maps, makes it clear just why the forests, animals, flowers, rivers, deserts and caves of the Land of the Big Sky are exactly as they are. Large 10''x12½'' format, hardcover, 272 pages, originally published at $25.00, now only $12.98.

THE WESTERNERS by Dee Brown. The author follows the frontiersman into his heroic world—tells the story of early explorers, trappers, fur traders, Forty-niners, builders and operators of stagecoach and mail services, telegraphs and railroads—through the experience of a few influential, representative Westerners—white men, white women and Indians. Hardcover, beautifully illustrated with color and black and white photos, 288 pages, originally published at $17.95, now priced at $7.98.

THE OLD TRAILS WEST by Ralph Moody. The story of great legendary routes that bound a wild land into a nation. The Oregon Trail, El Camino Real, the Butterfield Overland Mail, The Santa Fe Trail and many more names that conjure up the romance of the past. It recounts the true stories behind the trails and how they contributed to the settling of the West. Illustrated with maps and reproductions of authentic old prints. Hardcover, 318 pages, originally published at $8.95, now only $3.98.



HISTORICAL ATLAS OF NEW MEXICO by Warren A. Beck and Ynez D. Haase. Geographical data, sites of preshistoric civilizations, events of history, first towns, stagecoach lines, historic trails, etc., are included in this comprehensive atlas. Excellent maps, index. Hardcover, highly recommended, $5.95.

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.

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

GHOST TOWNS AND MINING CAMPS OF CALIFORNIA by Remi Nadeau. Once again available, this excellent book preserves the myths along with the history of the ghost towns of California. Paperback, 278 pages, well illustrated, $4.95.

FORKED TONGUES AND BROKEN TREATIES Edited by Donald E. Worcester. This book gives us a better understanding of the unequal struggle of native against immigrant while our nation was being explored and settled. Profusely illustrated with excellent photos, a "must" reference for historians, students, librarians. Hardcover, 494 pages, $9.95.

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.

ROAMING THE AMERICAN WEST by D. E. Bower. Superbly detailed adventure and activity guide to 110 scenic, historic and natural wonders in 11 Western states for the family and sportsmen—from dinosaur stamping grounds in Colorado through ghost towns, prehistoric Indian villages, abandoned mines, wilderness areas, etc. Lavishly illustrated with photos and driving maps. Large format, hardcover, originally published at $12.50, now priced at $4.98.

NEW BAJA HANDBOOK for the Off-Pavement Motorist in Lower California by James T. Crow. Discover the real Baja that lies beyond the edge of the paved road, the unspoiled, out-of-the-way places unknown to the credit-card tourist. The author, drawing from his extensive travels in these parts, tells where to go, what to take along, the common sense of getting ready. Illustrated, paperback, 95 pages, $3.95.

THE CHEMEHUEVIS by Carobeth Laird. A superb enthnography destined to become a classic in anthropology, by the author of **Encounter With An Angry God.** Based on information provided by the author's husband, George, a Chemehuevi tribesman, the work is a delight to both scholars and general readers. With glossary, maps, index, place-name index and appendices on language and cartography. Beautifully decorated. Paperback, 349 pages, $8.95 paperback, $15.00 hardcover.

TOP BOTTLES U.S.A. by Art and Jewel Umberger. The discovery of a rare old bottle opens up a new understanding of life at an earlier period. A collection of old medicine bottles takes one back to a slower, less complicated life-style. A time when a concoction of aromatic bitters could cure almost anything. The authors have an expertise in their field that cannot be challenged. Illustrated, paperback, $4.50.

JEEP TRAILS TO COLORADO GHOST TOWNS by Robert L. Brown. An illustrated, detailed, informal history of life in the mining camps deep in the almost inaccessible mountain fastness of the Colorado Rockies. 58 towns are included as examples of the vigorous struggle for existence in the mining camps of the West. 239 pages, illustrated, end sheet map, hardcover, $7.95.

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.

THE WEST

Please add 50c per total order for Handling/Postage
Calif. add 6% state sales tax

SUCCESSFUL COIN HUNTING by Charles L. Garrett. An informative study of coin hunting, this is a complete guide on where to search, metal detector selection and use, digging tools and accessories, how to dig and the care and handling of coins. A classic book in the field. 181 pages, paperback, $5.00.

TALES OF THE SUPERSTITIONS, The Origins of The Lost Dutchman Legend by Robert Blair. An intriguing and well documented account of the fabulous Lost Dutchman, the author turns up new clues and signatures which will prove to be both a setback and a stimulus to the search for the legendary mine. Paperback, 175 pages, $4.95.

TO HELL ON WHEELS by Alan H. Siebert. A must for every desert traveler, this is not just another survival book, it is a manual of mobility for the recreational vehicle drive who is looking for something more than the organized campground. Highly recommended for both the newcomer and old-timers. Paperback, 64 pages, well illustrated, $2.95.

THE LIFE OF THE DESERT by Ann and Myron Sutton. This fascinating volume explains all the vital inter-relationships that exist between the living things and the physical environment of our vast desert regions. More than 100 illustrations in full color. Helpful appendices contain comprehensive index and glossary. Special featues on endangered species, lizards and poisonous animals. Hardcover, 232 pages, profusely illustrated, $5.50.

GOLDEN CHIA by Harrison Doyle. The only reference book on the chia plant and seed. This book illustrates the great difference between the high desert chia, and the Mexican variety sold in the health food stores. If you study, practice and take to heart, especially the last ten pages of this nutritionally up-to-date, newly revised book, you will find many answers you've been searching for to the achievement of health and well being, lengthen your life expectancy measureably, and be 99% less susceptible to disease of any sort. Fourth printing, 105 pages, illustrated. Paperback $4.75, cloth, $7.75.

STAGECOACH WEST by Ralph Moody. The lively story of stagecoaching in the West, which provided the lines of rapid communication, hauled the wealth of a new nation, and helped Americans settle the region between the Missouri and the Pacific. Well illustrated, including many detailed maps. Hardcover, 341 pages, originally published at $8.95, now only $3.98.

A HISTORY OF THE COMSTOCK SILVER LODE AND MINES, Nevada and the Great Basin Region, Lake Tahoe and the High Sierras, by Don De Quille [William Wright]. Gives an excellent description of Nevada mining, particularly in the period of its greatest productivity. Also includes history of the region, its geography and development. Hardcover, one of the "America's Pioneer Heritage" Series, 158 pages, originally published at $6.95, now priced at $2.95.

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.

TREASURE HUNTER'S MANUAL #7 by Karl von Mueller. Treasure, or treasure trove, may consist of anything having a cash or convertible value; money in all forms, bullion, jewelry, guns, gems, heirlooms, genuine antiques, rare letters and documents, rare books and much, much more. This complete manual covers every facet of treasure hunting. Paperback, 293 pages, illustrated, $6.50.

UTAH GEM TRAILS by Bessie W. Simpson. Newly revised edition for the casual rockhound or collector interested in collecting petrified wood, fossils, agate and crystals. The book does not give permission to collect in areas written about, but simply describes and maps the areas. Paperback, illustrated, maps, $3.50.

WILDLIFE OF THE SOUTHWEST DESERTS by Jim Cornett. Written for the layman and serious students alike, this is an excellent book on all of the common animals of the Southwest deserts. A must for desert explorers, it presents a brief life history of everything from ants to burros. Paperback, 80 pages, illustrated, $2.99.

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.

GHOST TOWN ALBUM by Lambert Florin. Over 200 photos. Fascinating pictorial accounts of the gold mining towns of the Old West—and the men who worked them. Large format, 184 pages, profusely illustrated, hardcover, originally published at $12.50, new edition $4.95.

200 TRAILS TO GOLD, A Guide to Promising Old Mines and Hidden Lodes Throughout the West by Samuel B. Jackson. Rated by the pros as "one of the best," this comprehensive guidebook is jam-packed with detailed descriptions of hundreds of gold-prospecting opportunities, histories of past bonanzas, and stories of still-to-be-located lost mines. It covers every gold-bearing section of the United States. Hardcover, 348 pages, illustrated, $8.95.

THE OWENS VALLEY AND THE LOS ANGELES WATER CONTROVERSY—OWENS VALLEY AS I KNEW IT by Richard Coke Wood. The author was eye witness to California's Little Civil War, the struggle that occurred between the pioneer farmers of Owens Valley and the great growing metropolis of Los Angeles in the 1920s. The struggle between representatives of Los Angeles and the farmers, the checkerboard buying of ranches, reparations, the years of arbitration and compromise, the opening of the Alabama spillway by the farmers, the men, the action, the historical story are all recorded here. Paperback, illustrated, $3.95.

EARTHQUAKE COUNTRY by Robert Iacopi. New, revised edition brings maps and descriptive text up to date as nearly as practicable. Well illustrated, the book separates fact from fiction and shows where faults are located, what to do in the event of an earthquake, past history and what to expect in the future. Large format, slick paperback, 160 pages, revised edition is now $3.95.

AMERICAN INDIAN FOOD AND LORE by Carolyn Neithammer. The original Indian plants used for foods, medicinal purposes, shelter, clothing, etc., are described in detail in this fascinating book. Common and scientific names, plus descriptions of each plant and unusual recipes. Large format, profusely illus., 191 pages, $4.95.

GEM TRAILS OF ARIZONA by Bessie W. Simpson. This field guide is prepared for the hobbiest and almost every location is accessible by car or pickup accompanied by maps to show sandy roads, steep rocky hills, etc., as cautions. Laws regarding collecting on Federal and Indian land outlined. Paperback, 88 pages, illus., $3.50.

COLORFUL DESERT WILDFLOWERS by Grace and Onas Ward. Segregated into categories of red, blue, white and yellow for easier identification, there are 190 four-color photos of flowers found in the Mojave, Colorado and Western Arizona deserts, all of which also have common and scientific names plus descriptions. Heavy, slick paperback, $4.50; hardcover, $7.50.

THE SALTON SEA, Yesterday and Today, by Mildred deStanley. Includes geological history, photographs and maps, early exploration and development of the area up to the present. Paperback, 125 pages, $1.75.

Letters to the Editor

Letters requesting answers must include stamped self-addressed envelope

Finds Desert . . .

I have just purchased a small 12-foot travel trailer and left in it were copies of your magazine, *Desert*. I have now read nearly every one of them, about 10, and love them. I didn't know there was a publication of this sort around.

My husband has had a heart attack and is unable to do much of anything, so am anxious to subscribe to this magazine for him, as he is interested in rockhounding.

GRACE HOLLOWAY,
Culver City, California.

Remembers Chic Sale

Guess I am surely an "old-timer." Back in the early '20s, a cartoonist drew a cartoon that came out in issues of the *Daily Oklahoman*. There was this character sitting on a barbed wire fence with a privy in the background, and a saying that was popular and quoted often. It was signed *Chic Sale*. That is all it took to start calling outdoor privies Chic Sales.

LINLEY K. HALL,
Lemon Grove, California.

El Triunfo . . .

I would like to comment on your article "Boom Camps of Baja's Southern Cape" which appeared in the December issue.

I really enjoyed the article. I have just returned from a three-week vacation in Baja, and was able to take pictures of the town. It looks just like a setting for a Pancho Villa film.

However, I do feel there was one mistake in the article, the spelling of El Triumfo. Shouldn't it be spelled El Triunfo?

ANITA JONES,
San Diego, California.

Editor's Note: Yes, Anita, El Triumfo was in reality the Editor's El Goofo—your spelling of El Triunfo is correct.

Desert Update . . .

In the December 1976 issue, page 31 of *Desert*, there is a picture designated small Fresno. Now when I was a boy growing up on a farm in Kansas this was referred to as a Slip Scraper. Many times I had a team hooked up to one of these Slip Scrapers, the lines knotted and around my shoulders, repairing washouts along county roads. The Fresno came out later than the Slip Scraper—along in the 1910s.

Recently I led a group into Panamint and Death Valley areas for eight days. One of the trips was up into the mountains from Swansea towards Burgess generally following the old Tramway that was used to haul salt out of Saline Valley. Before arriving at Burgess we turned back east along the crest of the mountain to Cerro Gordo. The tramway structure at the apex of the mountain still stands in very good repair.

Incidentally, Mae Derrill, who over a period of 25 years was the only registered nurse in the Death Valley area, lives at Swansea. She told me she refused to live in a rest home and she wants to live out her time in the desert. She is 97-years-old and still very alert.

HAROLD HAWKINS,
San Diego, California

The Perfect Gift . . .

I first saw your Magazine in my dentist's office, and realized it was the perfect gift for my son and daughter-in-law.

Where have I been all your life? I date back so far I remember that the "Cathedral" in Cathedral City (near Palm Springs) was from the lovely little canyon back of that area where Tom Mix once made a picture. I also remember the tall trees on Indian Avenue in Palm Springs when people still camped occasionally there in the shade—courtesy of the Indians—or so I suppose.

K. C. SMITH,
Goleta, California.

From Cover to Cover . . .

I so enjoyed your article about Seldom Seen Slim. It made me think of another old-timer—Gene Yocum—of Cortland, Arizona. He died a couple of years ago at the age of 100. He had lived alone in this ghost town for many years and there are many stories about him locally.

I have enjoyed *Desert Magazine* for a long time. When it comes all else stops while I read it from cover to cover.

MARJORIE K. HUNT,
Newburgh, New York.

Appreciates Rock Column . . .

Just a note of appreciation and thanks for Glenn and Martha Vargas' article in the November 1976 issue of *Desert*. As a serious collector of tourmaline and its associate minerals/rocks, etc., I enjoyed their treatment of the Himalaya Mine near Mesa Grande.

JOHN LOVEJOY,
Anaheim, California.

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.

FEBRUARY 11-13, Annual Gold Rush Days Show and Sale sponsored by the Wickenburg Gem & Mineral Society, Community Center, Wickenburg, Arizona. Free admission. Special Copper Minerals Exhibit. Chairman: Moulton Smith, P. O. Box 1042, Wickenburg, Arizona 85358.

FEBRUARY 12 & 13, American River Gem & Mineral Society, Inc., will hold their 12th Annual "Fiesta of Gems" show at the Mills Jr. High School, 10439 Coloma Rd., Rancho Cordova, Calif. Chairman: Ralph Darden, P.O.Box 374, Rancho Cordova, Calif. 95670.

FEBRUARY 18-27, National Date Festival "Gem and Mineral" Show. Hosted by: Coachella Valley Mineral Society, Desert Gem and Mineral Society, San Gorgonio Gem and Mineral Society, Shadow Mountain Gem and Mineral Society. Fairgrounds, Highway 111, Indio, Calif. Show Chairman: George Oswald, National Date Festival, P. O. Drawer NNNN, Indio, California 92201.

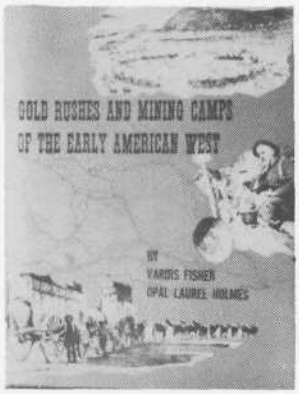
FEBRUARY 26 & 27, Gem and Mineral Show sponsored by the Santa Clara Valley Gem and Mineral Society, Inc., Santa Clara County Fairgrounds, Pavilion Bldg., 344 Tully Road, San Jose, California.

MARCH 5 & 6, 18th Annual Gem and Mineral Show sponsored by the Monrovia Rockhounds, Inc., Masonic Temple, 204 West Foothill Blvd., Monrovia, Calif. Dealer space filled. Chairman: Richard Trebisky, 1035 E. Huntington Dr., #26, Monrovia, Calif. 91016.

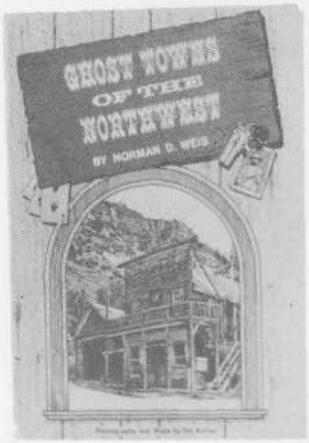
MARCH 17-27, Orange Belt Mineralogical Society's Annual Gem and Mineral Show. National Orange Show Grounds, Hobby Bldg., San Bernardino, California. Chairman: Tom Gaitskell, P.O.Box 5642, San Bernardino, California 92412.

MARCH 20, 11 A.M., Desert Gardens Walk, sponsored by Anza Borrego Committee, Yaqui Wells, at intersection of Highway S-3 and Highway 78 in Anza-Borrego State Park, California. Wear walking shoes, take a sunshade hat, lunch and water. Nature and archaeology program and guided walks by Park Rangers. Information: State Park Office, (714) 767-5311. Public welcome.

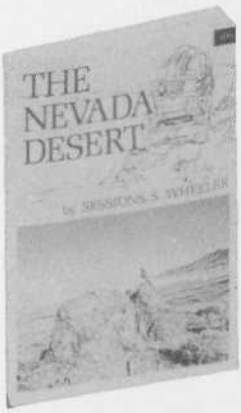
GREAT READING From CAXTON PRINTERS



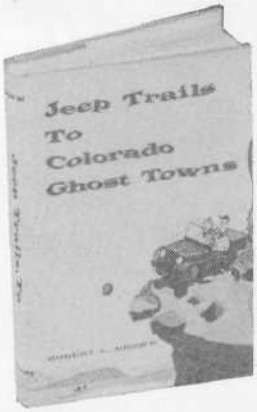
GOLD RUSHES AND MINING CAMPS OF THE EARLY AMERICAN WEST by Vardis Fisher and Opal Laurel Holmes. Few are better prepared than Vardis Fisher to write of the gold rushes and mining camps of the West. He brings together all the men and women, all the fascinating ingredients, all the violent contrasts which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



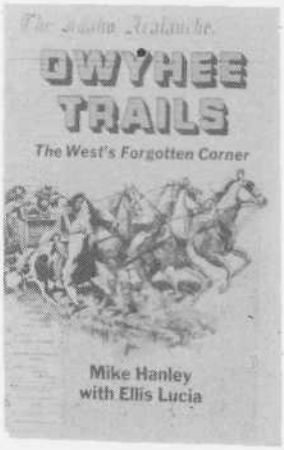
GHOST TOWNS OF THE NORTHWEST by Norman Weis. The ghost-town country of the Pacific Northwest, including trips to many little-known areas, is explored in this first-hand factual and interesting book. Excellent photography, maps. Hardcover, 319 pages, $7.95.



THE NEVADA DESERT by Sessions S. Wheeler Provides information on Nevada's state parks, historical monuments, recreational area, and suggestions for safe, comfortable travel in the remote sections of western America. Paperback, illustrated, 168 pages, $2.95.

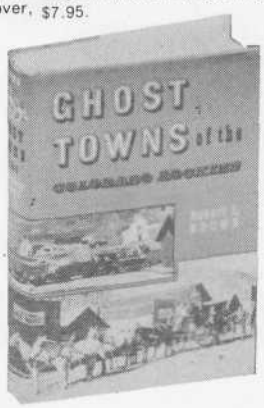


JEEP TRAILS TO COLORADO GHOST TOWNS by Robert L. Brown. An illustrated, detailed, informal history of life in the mining camps deep in the almost inaccessible mountain fastness of the Colorado Rockies. Fifty-eight towns are included. 239 pages, illustrated, end sheet map, Hardcover, $7.95.



OWYHEE TRAILS by Mike Hanley and Ellis Lucia. The authors have teamed to present the boisterous past and intriguing present of this still wild corner of the West sometimes called the I-O-N, where Idaho, Oregon and Nevada come together. Hardcover, 225 pages, $9.95.

SOUTHERN IDAHO GHOST TOWNS by Wayne Sparling. An excellent reference describing 84 ghost towns and the history and highlights of each. Excellent maps detail the location of the camps, and 95 photographs accompany the text. Paperback, 135 pages, $3.95.



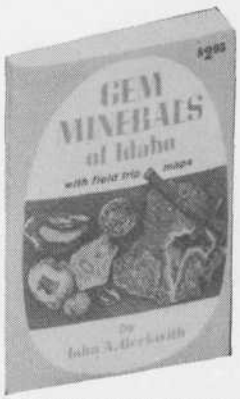
GHOST TOWNS OF THE COLORADO ROCKIES by Robert L. Brown. Written by the author of Jeep Trails to Colorado Ghost Towns, this book deals with ghost towns accessible by passenger car. Gives directions and maps for finding towns along with historical backgrounds. Hardcover, 401 pages, $7.95.

Send check or money order to

Desert MAGAZINE

Box 1318,
Palm Desert, Calif. 92260

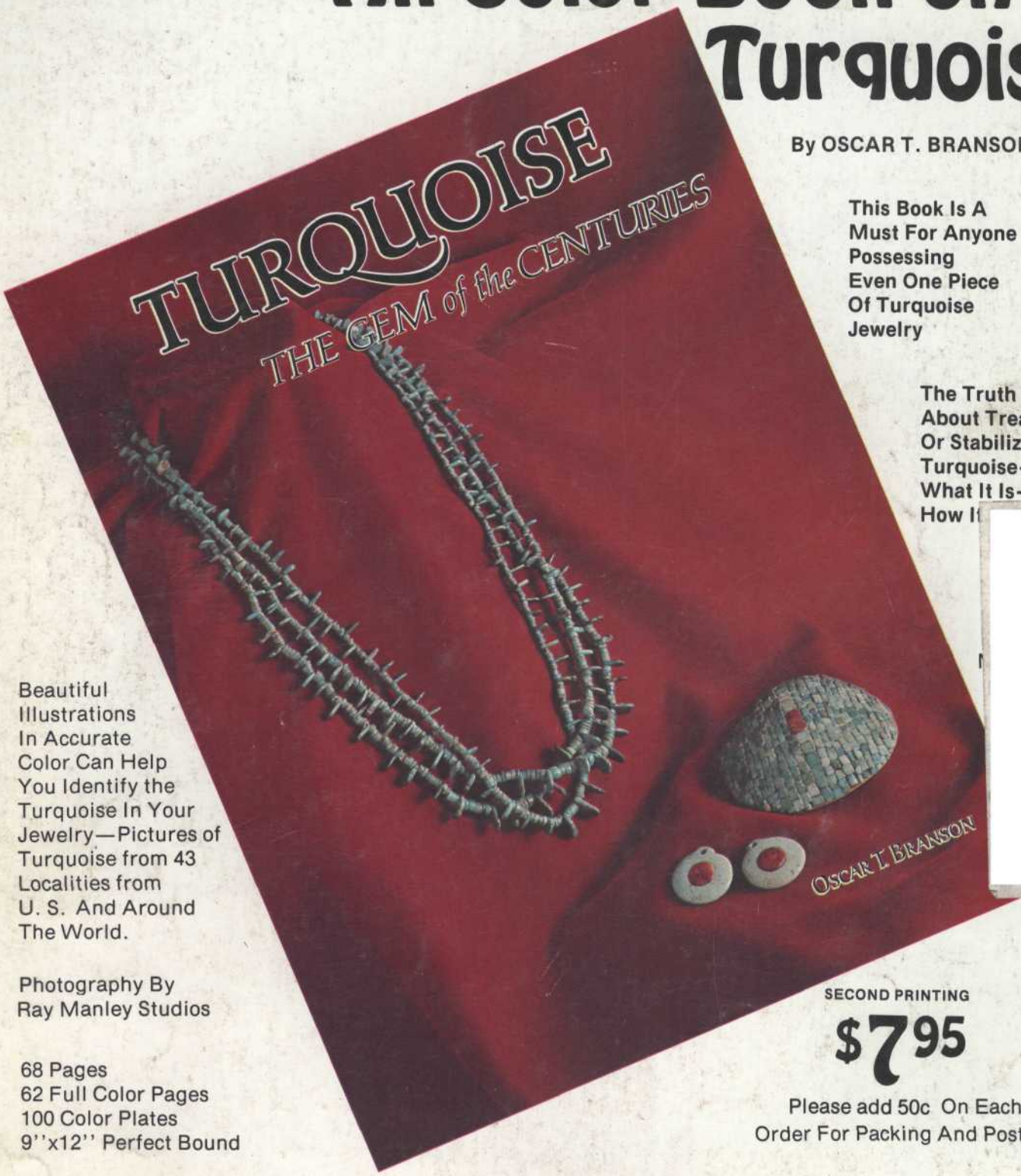
California residents please add 6% tax
plus 25c handling charge



GEM MINERALS OF IDAHO by John A. Beckwith. Contains information on physical and optical characteristics of minerals; the history, lore and fashioning of many gems. Eleven rewarding field trips to every sort of collecting area. Slick paperback, maps and photos, 123 pages, $3.95.

The First and Only All Color Book on Turquoise

By OSCAR T. BRANSON



This Book Is A Must For Anyone Possessing Even One Piece Of Turquoise Jewelry

The Truth About Treated Or Stabilized Turquoise— What It Is— How It

Beautiful Illustrations In Accurate Color Can Help You Identify the Turquoise In Your Jewelry—Pictures of Turquoise from 43 Localities from U. S. And Around The World.

Photography By Ray Manley Studios

68 Pages
62 Full Color Pages
100 Color Plates
9''x12'' Perfect Bound

SECOND PRINTING

$7.95

Please add 50c On Each Order For Packing And Postage

Order From

DESERT MAGAZINE
P. O. Box 1318
Palm Desert, Calif. 92260
Calif. Res. Please Add State Tax