MAGAZINE OF THE SOUTHWEST

Desert

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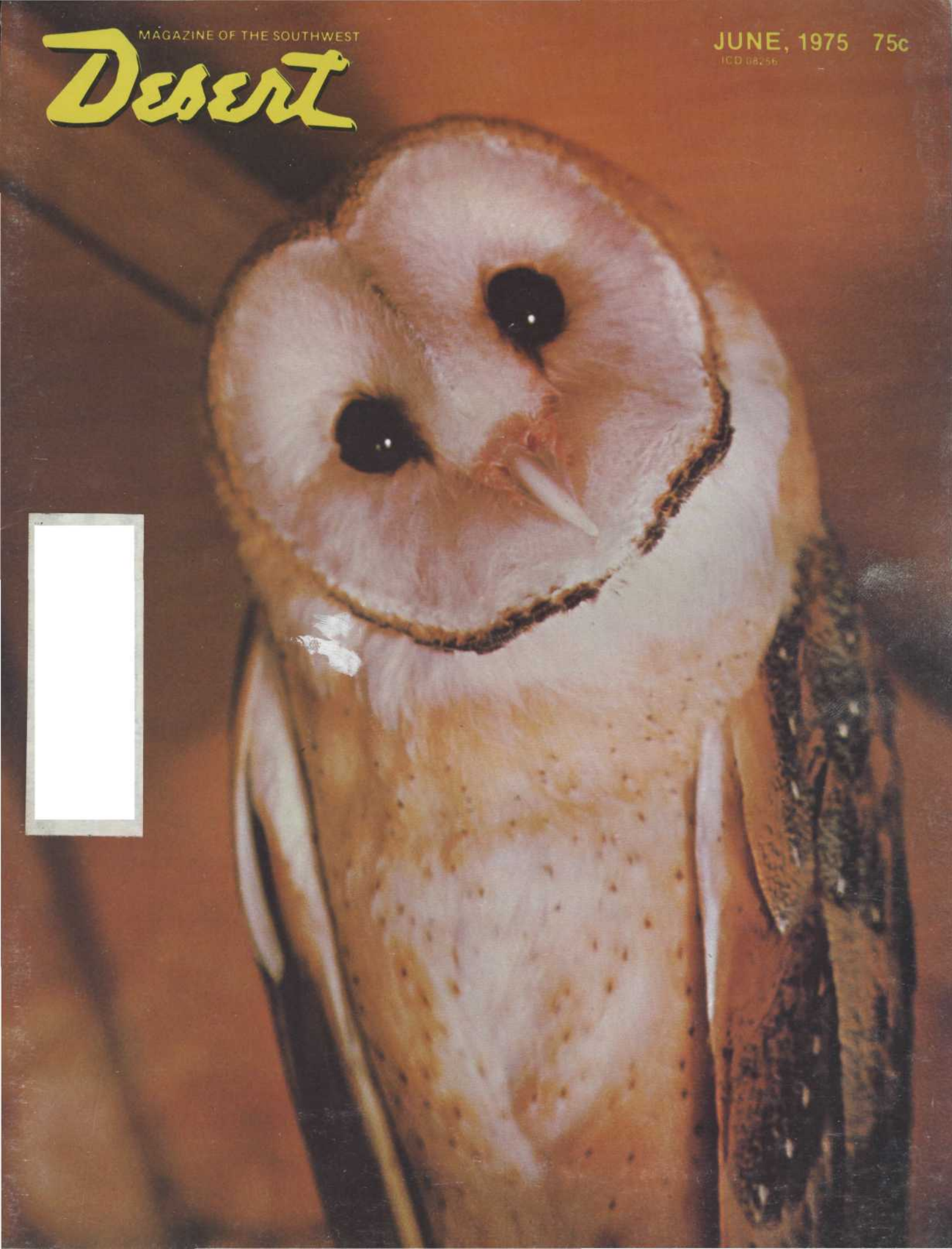

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Desert MAGAZINE

Volume 38, Number 6 JUNE 1975

CONTENTS

THE COVER:
A barn owl named Squeaky, who shares star billing with her brother, Topper, in "Owls on My Hat," page 24. Photo by Jerry Strong.

FEATURES

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EDITORIAL, CIRCULATION AND ADVERTISING OFFICES: 74-425 Highway 111, Palm Desert, California 92260. Telephone Area Code 714 346-8144. 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

FOR THOSE history buffs among our readers, this issue will have a double feature as Joe Kraus describes the home of that well-known "bad guy" Butch Cassidy, and Russell Mills elaborates on two canyon roads that played an important part in the development of Nevada's Virginia City.

Walter Ford takes us to the San Gorgonio Pass area of California where an enterprising fellow named Oliver tried to harness the wind to produce electricity. Many oldsters will perhaps remember seeing "Oliver's Wind Machine" between 1926 and 1942 when it was scrapped.

Boaters, campers and fishermen will enjoy F. A. Barnes' "Lake Powell Adventures." One of the truly great attractions of the Beehive State, Lake Powell's clear blue waters, bounded by red rock canyons, are a magnet to thousands of outdoor lovers.

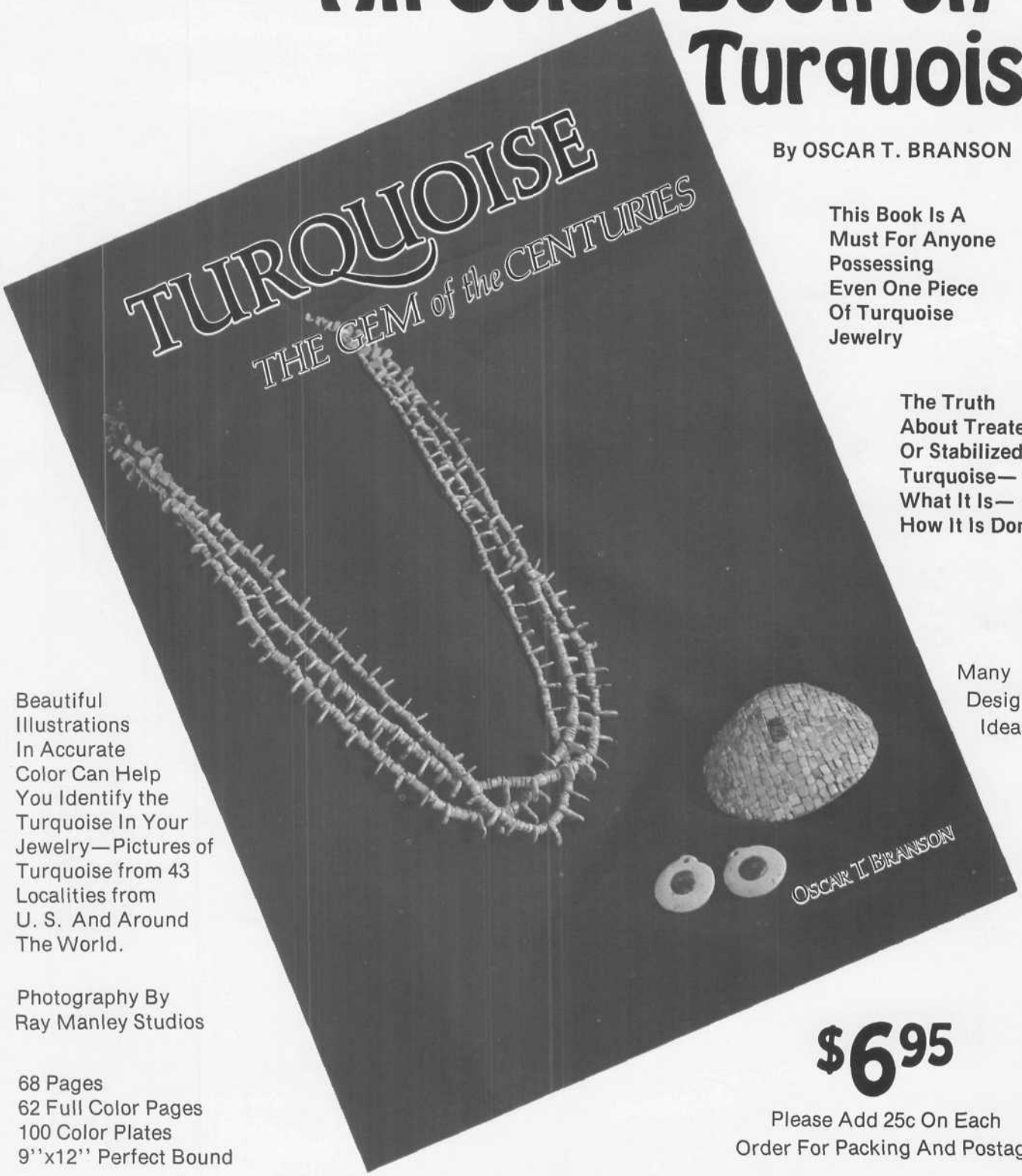
Arizona shares our editorial spotlight with Howard Neal's coverage of Montezuma Castle in the Verde Valley of the central part of the state, and K. L. Boynton keeps us up-to-date on that strange little cousin to the raccoon, the Coatimundi.

Marian Talmadge and Iris Gilmore collaborated to bring us a short article on staurolites to be found in New Mexico.

The featured article, however, is by Mary Frances Strong and it is not her usual field trip! M.F. (as she likes to be called) and her husband, Jerry, had a rare experience last year when they raised two barn owls to maturity. The heart-warming story on their trials and tribulations as written by M.F. and photographed by Jerry is, in my opinion, one of the finest articles to appear in *Desert*. It's different, it's delightful. Titled, "Owls on My Hat," it's guaranteed to leave a tear on your cheek.

The First and Only All Color Book on Turquoise

By OSCAR T. BRANSON



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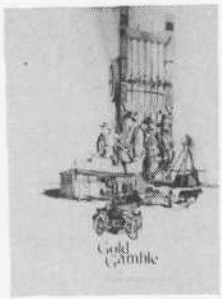


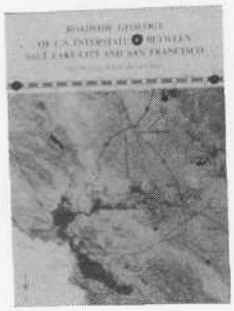
GOLD GAMBLE
By Roberta Martin Starry

Few are as qualified as Roberta Starry to write about that arid expanse of California's Mojave Desert that encompasses the Fremont and Golden Valleys, the washes and canyons of the El Paso and Rand Mountains, and was to be known as the Rand Mining District. This eastern corner of Kern County and a portion of San Bernardino County was the site of a tremendous gold mining boom in the late 1890s, and Roberta has written with insight into the lively days of the desert bonanza.

In 1895, the mining boom was gold, in 1905, it was tungsten, and in 1918 The Rand District started on a third discovery —silver. Lavishly illustrated with old photos, the text recounts the vivid memories of the tough men and women who conquered, for a time, that part of the desert known as The Rand.

Johannesburg, Red Mountain, Garlock and Randsburg may still be visited today, and many a head frame, slag pile, miner's shack and a couple of long bars are still to be seen. Garlock is the site with fewest visible reminders, as it had the fewest permanent structures and is fast disappearing.

Large format, 167 pages, excellent index, profusely illustrated, $4.25.



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This publication should prove equally useful to professional geologists, as well as to students of geology and/or earth science, rockhounds and the interested layman, and is arranged so that one may follow the route beginning in San Francisco or Salt Lake City.

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GUIDEBOOK TO THE COLORADO DESERT OF CALIFORNIA by Choral Pepper. Editor of Desert Magazine for six years, the author has used her research knowledge and first-hand experience to compile this detailed and informative guide to the Colorado Desert. Trips also include historical background. Slick paperback, illustrated, 128 pages, $2.95.

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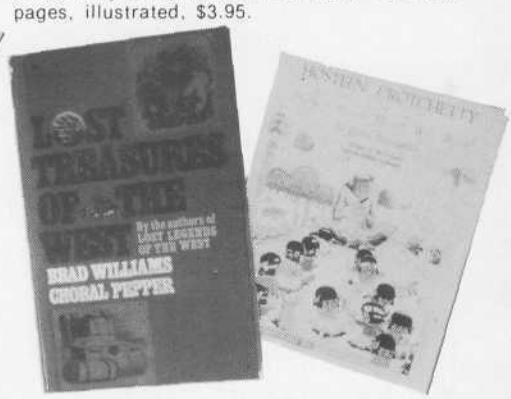

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THE WEST

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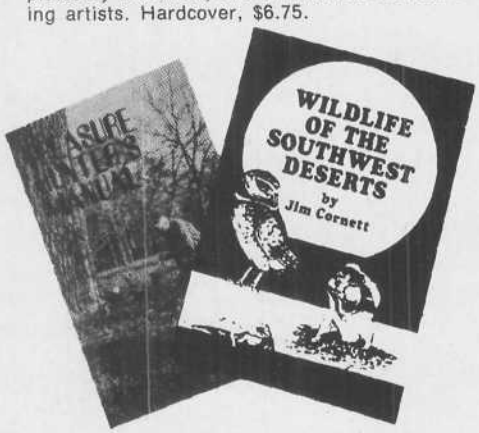

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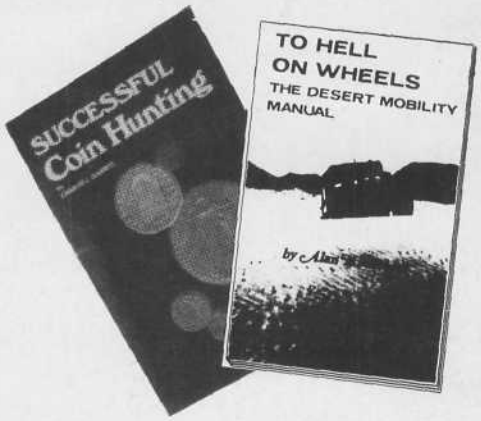

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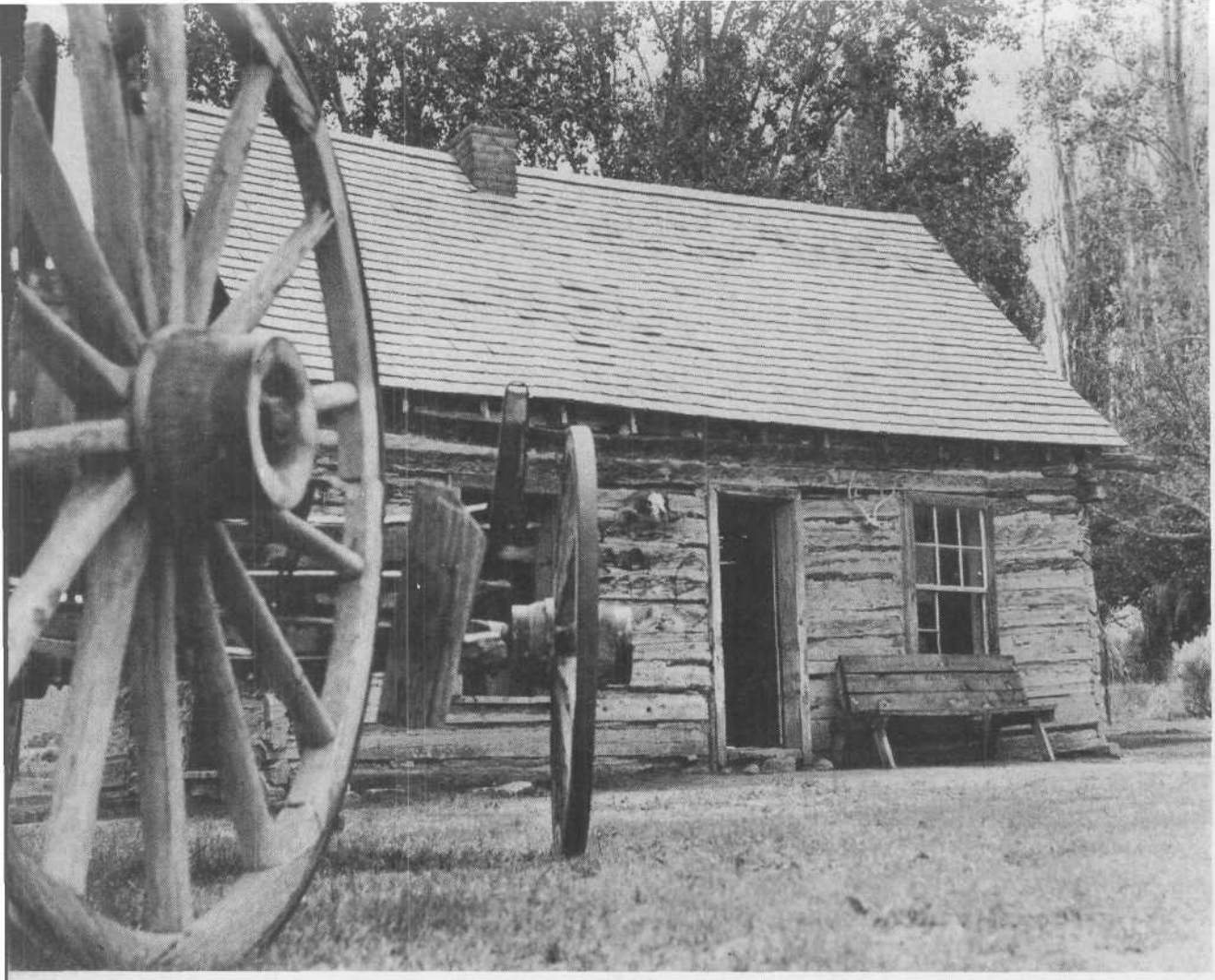


Butch Cassidy was 4 or 5 years old when his father completed the construction of the family home. Butch left the cabin and into the pages of history in his 20th year.

BUTCH CASS

Author's Note: The facts and dates in this story were obtained from the decendants of Butch Cassidy now living in Circleville, Utah. Mark Betenson, owner of the Parker home and ranch and nephew of Butch Cassidy, said much of the material written about his famous realtive has been fabricated. The only factual account to date the family is willing to recommend is Pearl Baker's book, "The Wild Bunch at Robbers Roost." This article, they said, is the first about the family home. A new book is being published by the Brigham Young University Press this year called "My Brother, Butch Cassidy." This book was written by Lula Betenson, sister of Cassidy and mother of Mark Betenson spoken of later in this article. Most bookstores in Utah are expected to handle the book.

by JOE KRAUS

IN MANY parts of the country, visitors can peek inside historic living rooms and parlors of famous men. Now museums, the homes are part of the American heritage, preserved in their natural state for future generations. In them lived presidents, statesmen, authors and scientists.

But rarely in all of America is there any homeplace memory of a bandit. Not so is the State of Utah. Here, in the southern section, three miles south of Circleville, is the boyhood home of the legendary Butch Cassidy.

It doesn't have the green lawns, the white paint, the neat trim of a Monticello or Mt. Vernon. And there are no adjoining servants quarters, rose gardens or gazebos. But then the Cassidy home never had any of these frills to begin with.

What it did have, however, was the charm, the homey setting, the simpleness of a hard working family. And that, despite time and the ravishness of man and the elements, it hasn't lost.

Setting in open ranch country near the banks of the Sevier River, the cabin home was made with hand-squared logs fastened together with square hand-cut nails. Most of the original floor boards remain, as does the loft where Butch and his brothers slept.

Above, on the ceiling, still cling tatters of cloth. Called "factory" by early Mormon housewives, the muslin was tacked to the walls, sized smoothly, and wallpaper pasted to it. Butch's mother was proud of her home and wove a carpet for the floor, padded with straw. At the right

Butch's mother planted the huge old cottonwoods, the gnarled apple trees and lilac bushes. And it is easy to imagine a tow-headed toddler who was destined to become America's most successful outlaw, lugging a water bucket as his mother set out the tree slips.

IDY'S HOME

side of the cabin was later added a lean-to kitchen. And beside the entrance door hangs the hand-forged bail of the family's original wooden bucket.

Outside, an extruding log at the southwest corner has a deep groove worn by hitching horses to it. The pair of old cottonwood trees in front of the cabin have carried higher with their growth the crossbar used for hanging butchered beef. A horsedrawn rope threaded through a pulley raised the carcass out of reach of dogs and other animals.

Butch's mother planted the huge old cottonwoods, the gnarled apple trees and lilac bushes. And it is easy to imagine a tow-headed toddler, who was destined to become America's most successful outlaw, lugging a water bucket as his mother set out the tree slips.

Abandoned for many years, the old home was until recently open to the public at no charge. Someone, however, took advantage of the situation and walked off with several antiques. As the result of this, the cabin is at present closed to the public. The cabin, and the ranch buildings, however, can be viewed easily from the main highway. It is on the west side of the road, three miles south of Circleville.

The homestead has been called the Parker Ranch since Maxie and Ann Parker filed on the land in 1870. Their first-born was to become the famed Butch Cassidy. Butch's birth was followed by those of 12 more children — all of whom grew to maturity within the walls of the Parker cabin.

Because history holds only two true gentlemen bandits — Robin Hood and Butch Cassidy — the legend of Butch Cassidy in this country is an ever-growing one of Western Americana.

It all started when he was born in Beaver, Utah, April 6, 1866 as Robert LeRoy Parker. Butch was four or five years old when the family moved into the cabin. He left the cabin and into the pages of history in his 20th year. It was then that he met an outlaw by the name of Mike Cassidy, assumed Cassidy's last name, participated in a bank holdup and set out for Wyoming.

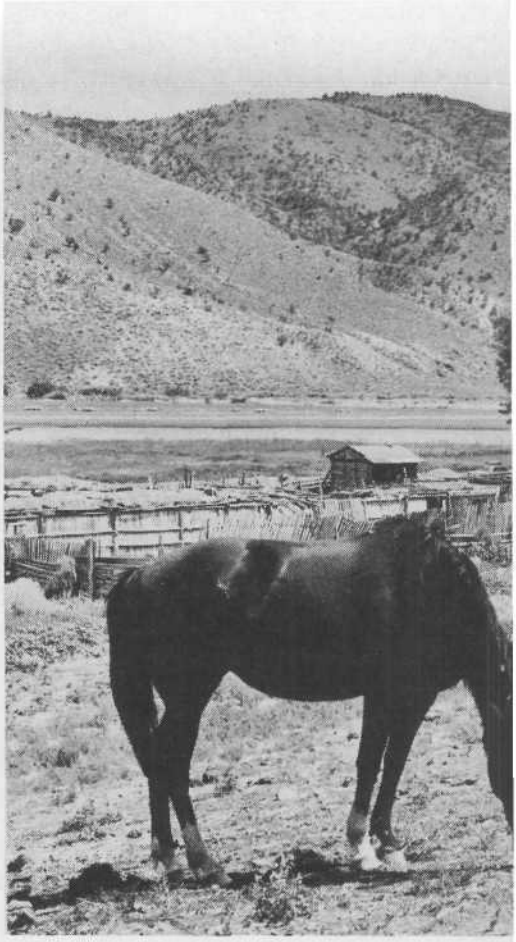
Settling in Lander, the only job he could get was in a butcher shop, and quite naturally he was called "Butch." Not satisfied with his new employment, he continued in a life of crime and was later sentenced to two years in the Laramie Penitentiary.

Pardoned in January, 1896 by Governor Richards, Cassidy then was the sub-

Today the Parker homestead remains a working ranch, producing hay and livestock. The cabin is still primitive as when the Parkers lived in it. Uninhabited for years, it has suffered from vandalism.

ject of great concern by the Union Pacific Railroad. Railroad officials, however, decided it might be a good idea to get Butch on their side, eliminating his leadership and scaring off fledgling outlaws.

A meeting to discuss the proposal was

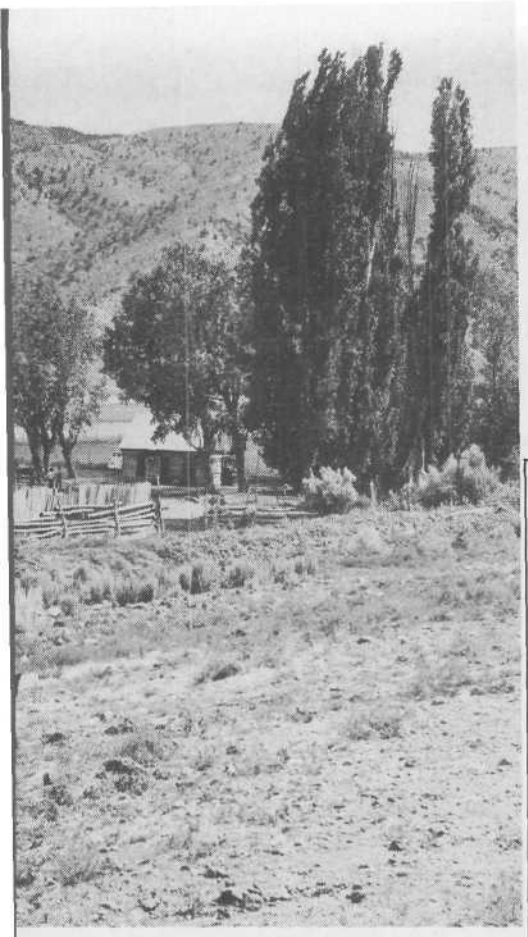


set up. But a bad storm delayed the officials and Butch, after waiting a day or two, decided the deal was off. But while the officials were trying to make contact with him, another holdup was held, ending any hope of truce. This set off a whirlwind campaign that ended with the Castle Gate payroll heist of 1897.

Figuring things were getting a little hot for them in the United States, Butch Cassidy and his partner, the Sundance Kid, traveled to South America. It wasn't long, however, before the two renewed a campaign of robbery that pretty well had the western part of that continent alarmed. As a result, the South American countries were screaming for the United States to repatriate her former citizens.

After the fight with the Bolivian cavalry at San Vicente in 1909, word reached the United States that Butch had been killed. The Pinkertons said that was good enough for them and they gave wide circulation to the story of the untimely end of their longtime enemy.

But it wasn't long afterwards that Butch was seen again in Lander, Wyoming. He visited around, but recognized with sadness that while old friends were cordial, Wyoming was no longer what it was.



He lived in Seattle, Washington for awhile, but the city life and climate didn't agree with him. He finally drifted to Spokane, where he took the name of Roy or LeRoy Phillips. He died of pneumonia in the late 1930s, unknown and alone.

Although he chose a life of crime, Butch Cassidy, throughout his days, was a friendly and likeable man. Unlike the ruffians and gunslingers of the time, Cassidy was a gentleman to the end.

After the death of Cassidy's father in 1939, ownership of the old home place, where Cassidy grew up, went to three surviving brothers. One, however, willed his share to Mark Betenson, Butch's nephew, who had the chore of working the old ranch.

After several years, it was decided to settle the inheritance question. And, in the way of the West, they chose a draw of cards. In Circleville, the first card drawn was the Jack of Diamonds. Mark drew second — the King of Clubs. The third and last card was the Six of Diamonds. All three cards, framed, hang above Mark's mantel in Circleville.

Today, his homestead remains a working ranch, producing hay and livestock. The cabin is still primitive as when the Parkers lived in it. Uninhabited for years though, it has suffered from vandalism.

But the feeling of what it once was, the peaceful and quiet setting is still there. However, if you're planning on heading that way sometime — hurry. The old ranch is up for sale and, if sold sometime soon, there is no telling what a new owner might have planned. It is fairly certain, however, that the cabin will remain. Not as a Monticello or Mt. Vernon, but as part of the colorful heritage of the West. □

Two Roads to Riches

by RUSSELL MILLS

EAST OF Carson City, Nevada, where the Flowery Range mountains drop into the Carson Plains, two roads snake upward through the sage-dotted canyons and meet on the slopes of Mt. Davidson. The spot where they converge is historic Virginia City. Although the gold rush activity overshadowed their small place in history, it was the gold prospecting in those two canyons that led to the boom days of the Comstock Lode.

The roads through both canyons swing north from US 50, the highway that parallels the old emigrant trail near the Carson River. The Gold Canyon road is a paved highway that turns off at a point seven miles east of Carson City, climbs through the old mining settlements into Virginia City, then winds down Geiger Grade on the other side to US 395, south of Reno. The Six Mile Canyon route is a dirt road that turns off five miles east of Dayton, then swings west to end in Virginia City. Both were a product of gold prospecting, both became active mining and milling centers, and both dropped into obscurity of abandoned mining settlements.

The Gold Canyon route had an inauspicious start in the spring of 1850 when an emigrant wagon train, proceeding along the Carson River route, stopped to make camp by the river in a wooded spot that is now the town of Dayton. As the group began to relax after the arduous trek across the Forty-Mile Desert, William Prouse decided to try panning gold from a creek that flowed out of a canyon. After a few minutes of swirling gravel in his milk can lid, streaks of "color" showed along the bottom. When he rushed back to the campsite, however, his excited announcement was met with total indifference, for his companions had their minds on the California gold fields, and those barren hills by the Carson River looked far from promising.

The following day the group departed for the Sierras, but before they had traveled far, a rider brought word that the passes were still blocked by snow. Reluctantly, the party wheeled about and returned to the Carson River to await the spring thaw. With the camp set up, and having nothing to do during the enforced wait, John Orr, the group's leader, headed for the same creek that Prouse had explored. He panned a few flakes of gold along the stream, then moved higher up toward an outcrop of rock. Here, where a shelf had narrowed the canyon (later named Devil's Gate), he pried a nugget out of the rocks. Though he was not impressed with his

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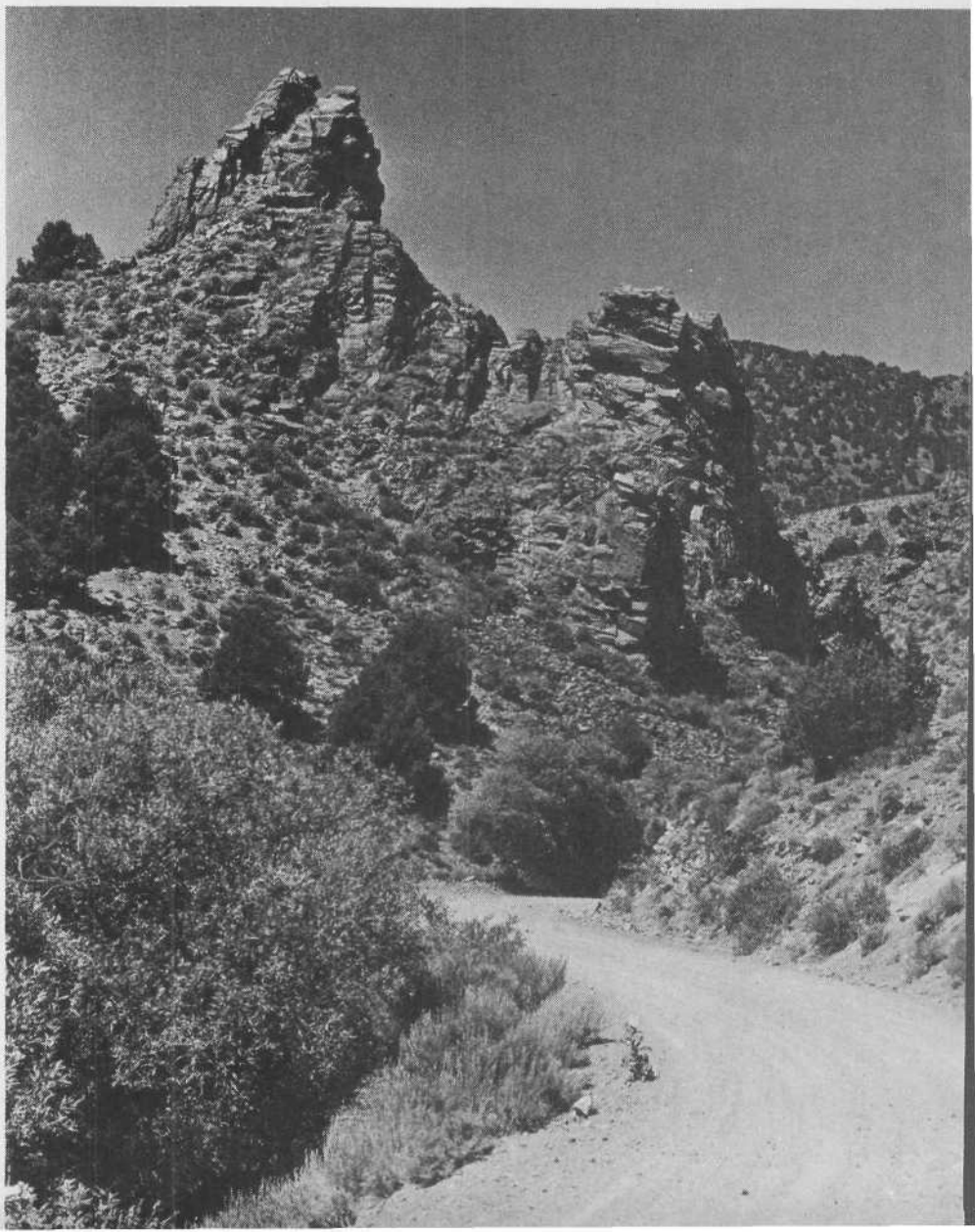
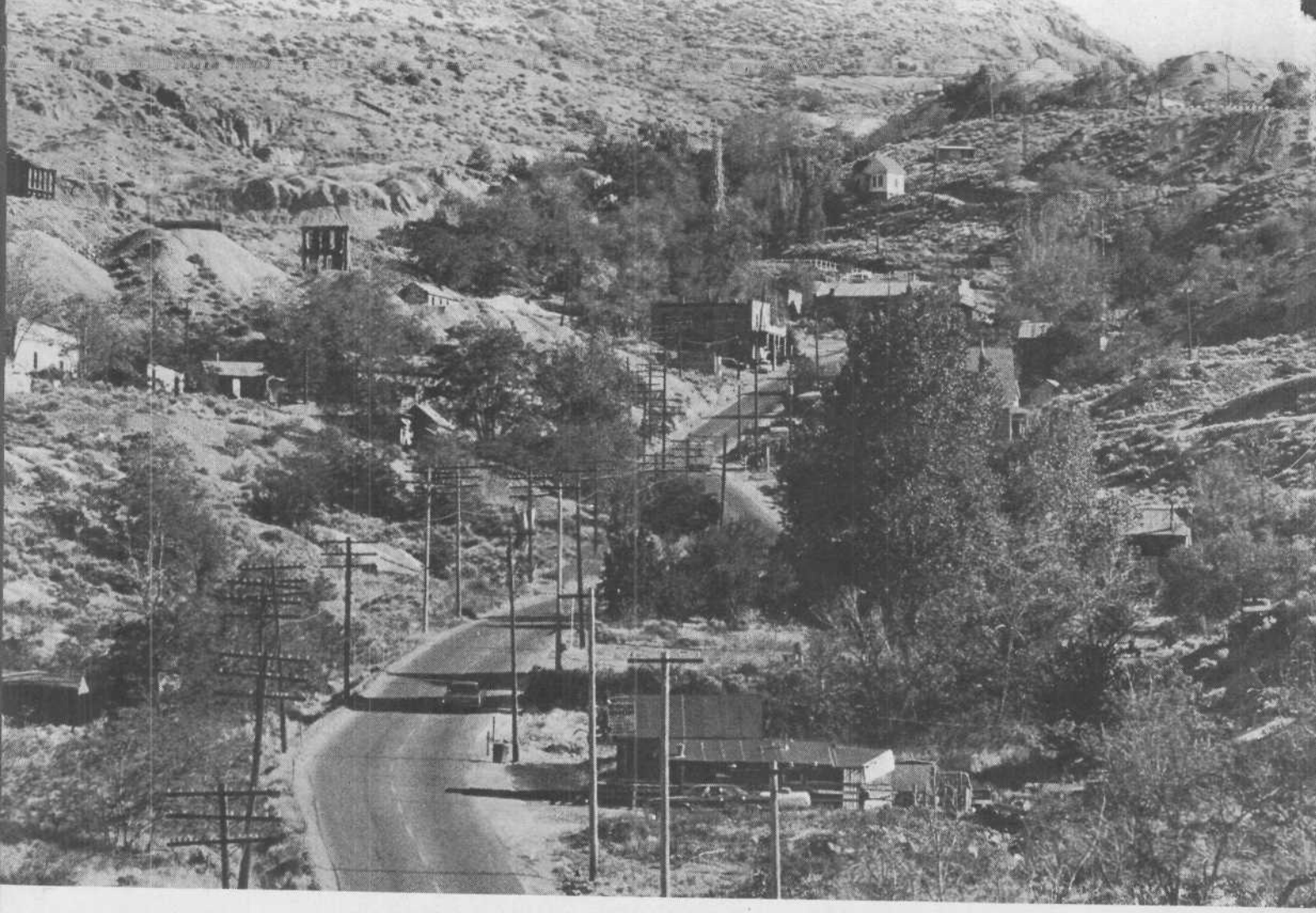
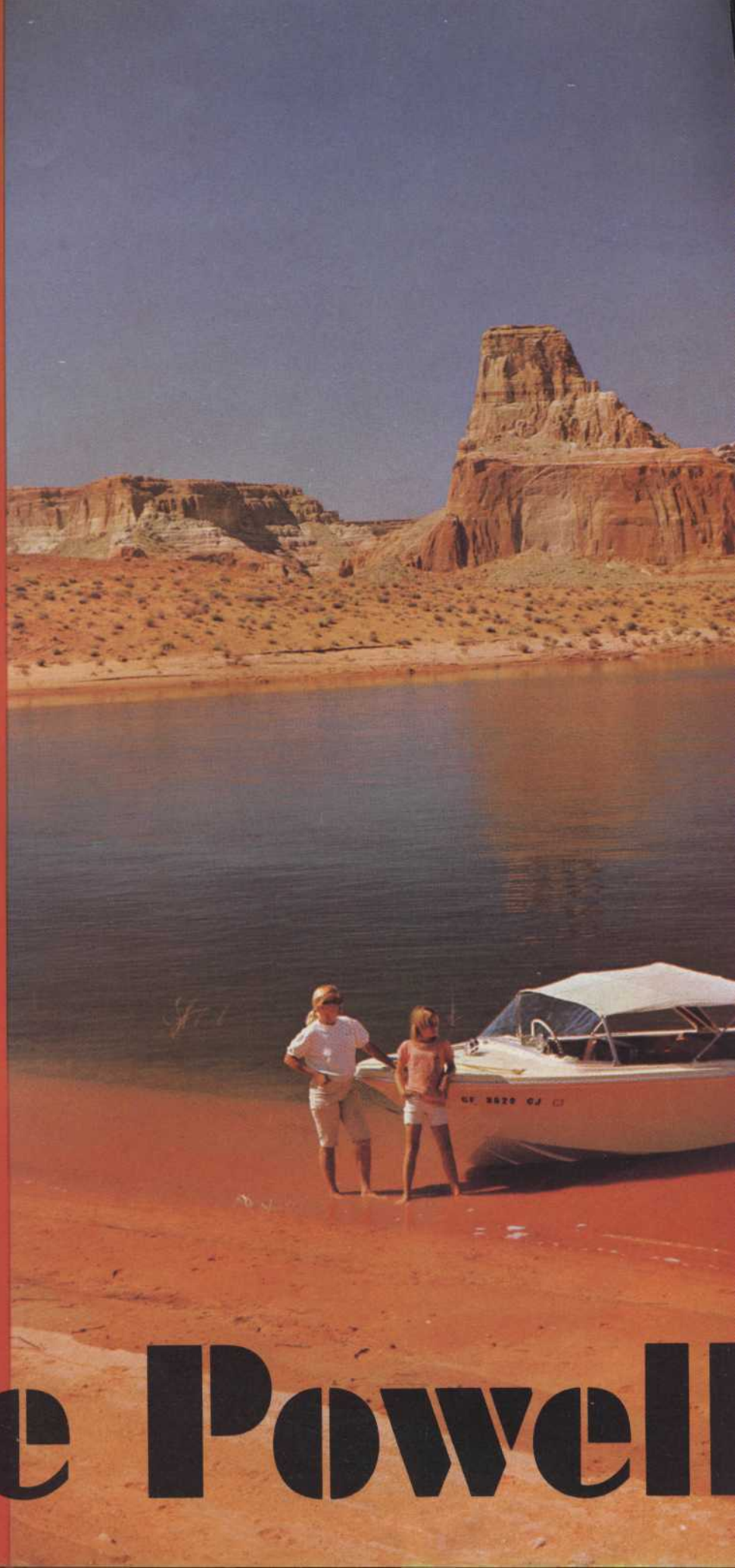




Above: The upper part of Gold Hill. The old Gold Hill Hotel is in the center of the picture. Right: The original Gold Hill Hotel, built in 1859 on the site of the first recorded claim. Left: Road twisting around rock outcrop up through the juniper, sage and willow of Six Mile Canyon.

Beautiful beaches are common along the 1800-mile shoreline. Photos by author.



LAKE POWELL, in southeastern Utah, is 180 miles long and has a shoreline almost 10 times this length, yet there are only four points of access to the lake. One of these is near Glen Canyon Dam, another is near where Utah 95 crosses the lake almost 150 lake-miles from the dam and the other two are near the 100-mile mark, one on the north shore, the other on the south.

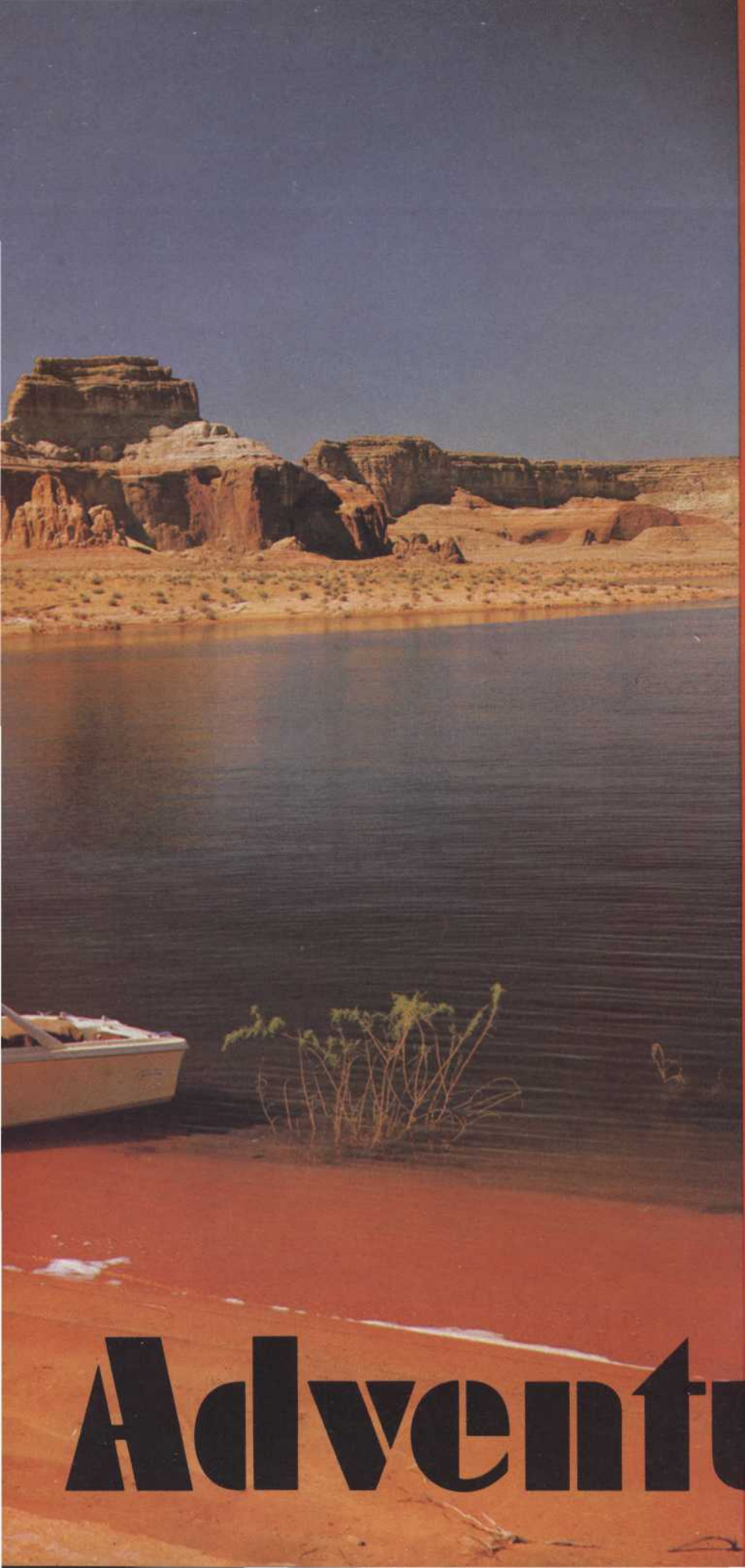
The south shore development is known as Hall's Crossing Marina. This complete, modern recreational facility is the nearest access to Lake Powell for travelers coming from southern Colorado or New Mexico, and offers travelers coming from any direction an outstandingly scenic approach to the lake.

From the south and west, travelers will take U.S. 163 north from Kayenta, Arizona. This route passes through the heart of spectacular Monument Valley, which is famous for its massive towers and mesas of red sandstone.

Travelers coming from the north will also travel U.S. 163, while those from the east may reach U.S. 163 via several east-west highways.

From U.S. 163, the approach to Hall's Crossing can be made by either of two routes: Utah 95 from Blanding, or Utah 261 from Mexican Hat to Utah 95. Either route is highly scenic, and goes through unspoiled redrock canyon country of incomparable beauty. Both approaches go near Natural Bridges National Monument, a highlight well worth visiting, then leave Utah 95 and head for the lake on Utah 263.

Lake Powell



by F. A. BARNES

All of these approaches to Hall's Crossing Marina are paved up to the boundary of Glen Canyon National Recreation Area, and this last short stretch of graveled road is scheduled for paving this year.

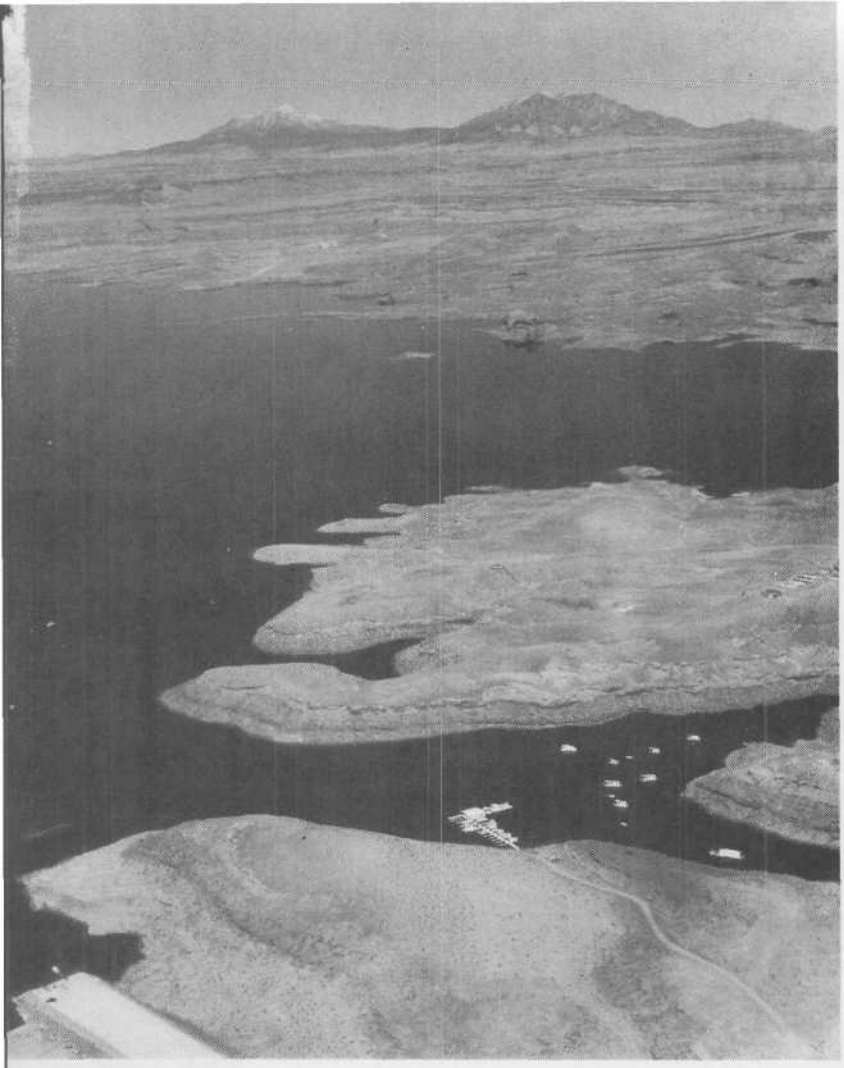
Hall's Crossing can also be reached from the northwest via Utah 24 and Utah 95 by crossing the lake at Hite on Utah 95, then turning onto Utah 263 toward the marina. Part of Utah 95 south of Hite is still unpaved, but the grading should be complete by late spring and the paving later this year, making all approaches to Hall's Crossing paved, all-weather roads.

The novel and spectacular beauty of Lake Powell and its endless recreational opportunities are well known by now. Nowhere is there a lake that offers better boating, fishing, waterskiing, sightseeing or exploring, and these activities are especially attractive in the uncrowded upper reaches of the lake that are easily accessible from Hall's Crossing.

Lake visitors who reach Hall's Crossing after traveling through the vast expanses of lovely, unspoiled canyonlands wilderness in that part of Utah are often surprised at the variety and completeness of the accommodations and services to be found at this development. The National Park Service maintains a modern campground, an airstrip, a paved boat launch ramp with parking area and there is always a helpful ranger on duty.

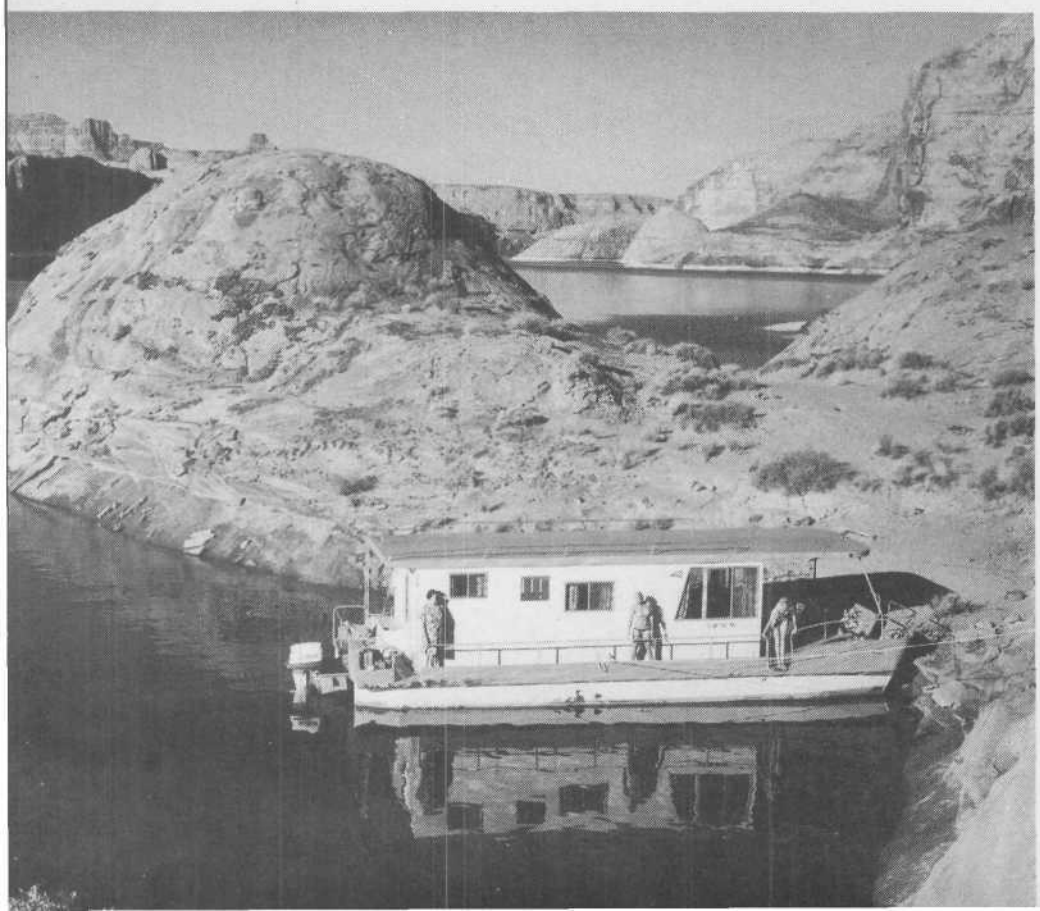
The concessioner, Lake Powell Ferry

Adventures



This aerial view of the Hall's Crossing development shows the launch ramp, marina, part of the trailer village, Bullfrog Bay beyond the main lake channel and the Henry mountains in the distance.

Houseboats can be moored to the rocky shore of Lake Powell almost anywhere. This lovely site is in Oak Creek Bay, not far from famous Rainbow Bridge.



Service, Inc., operates the floating marina, a trailer park, overnight accommodations, a general store and a drydock storage yard. Services offered include marine equipment repairs, boat rentals, guided lake tours, trips to famous Rainbow Bridge and limited ferry service for small vehicles.

The marina also supplies fuel and oil, fishing tackle, bait and licenses, groceries, camping provisions, ice, maps of the lake and cold drinks. Boats for rent range from small fishing craft to luxurious, self-contained 41-foot houseboats.

Complete details on accommodations and services available at Hall's Crossing Marina can be obtained by writing Lake Powell Ferry Service, Inc., Blanding, Utah 84511. Reservations for overnight accommodations and boat rentals are advisable during the summer months.

Hall's Crossing Marina is ideally located for exploring the upper 100 miles of Lake Powell. For those who wish to visit famous Rainbow Bridge, this spectacular natural wonder is closer to Hall's Crossing Marina than it is to the marina near the dam, and for those who do not own a boat or choose to rent one, charter trips from Hall's Crossing to Rainbow Bridge cost about the same as from the dam.

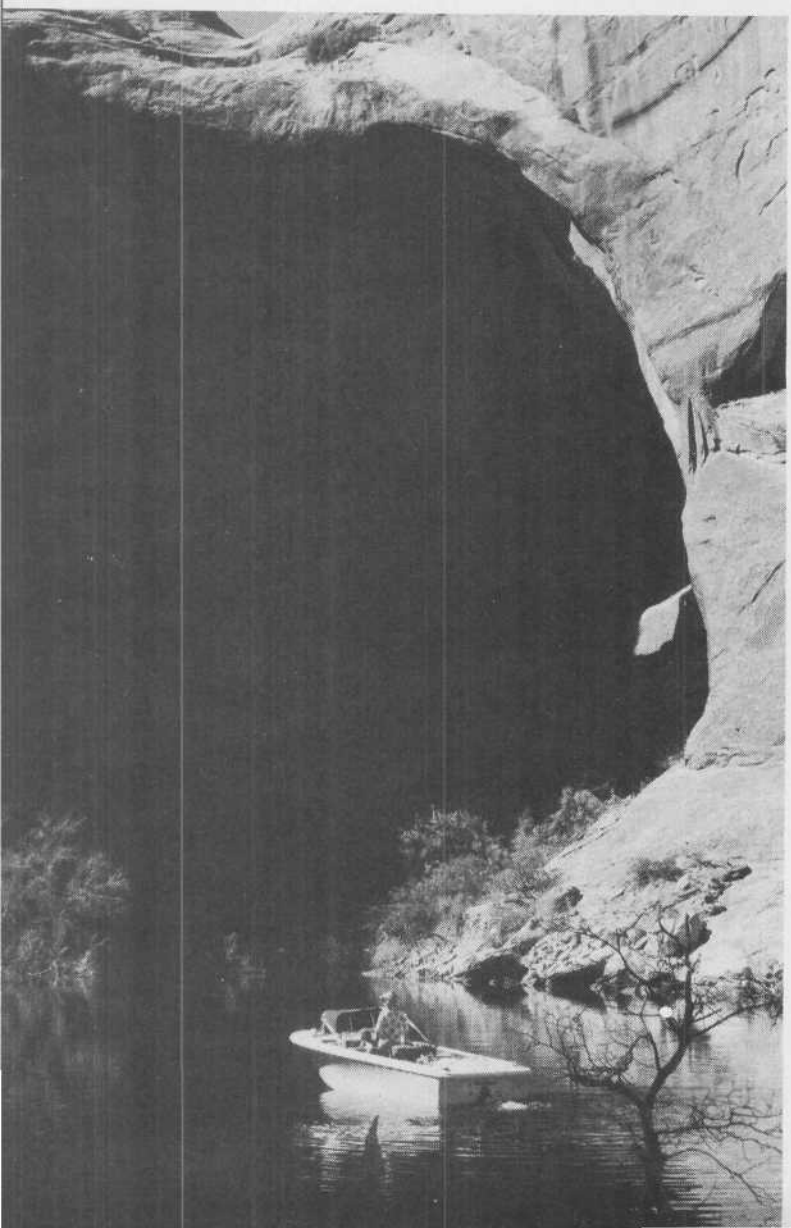
Fishing is outstanding in upper Lake Powell. Hundreds of broad bays and narrow arms of the lake provide ideal habitat for bluegill, crappie, bass and trout, and recently a few northern pike have been caught. There is simply no end of quiet, undisturbed locations in the upper lake where fishing conditions are perfect.

Boatcamping, waterskiing and other water sports are also excellent in this uncrowded part of the lake. High cliffs shelter the main lake channel from wind, providing excellent skiing, and knowledgable Lake Powell boaters find that camping on a shore of rounded sandstone slickrock is even better than using the sandy beaches that are found in many places.

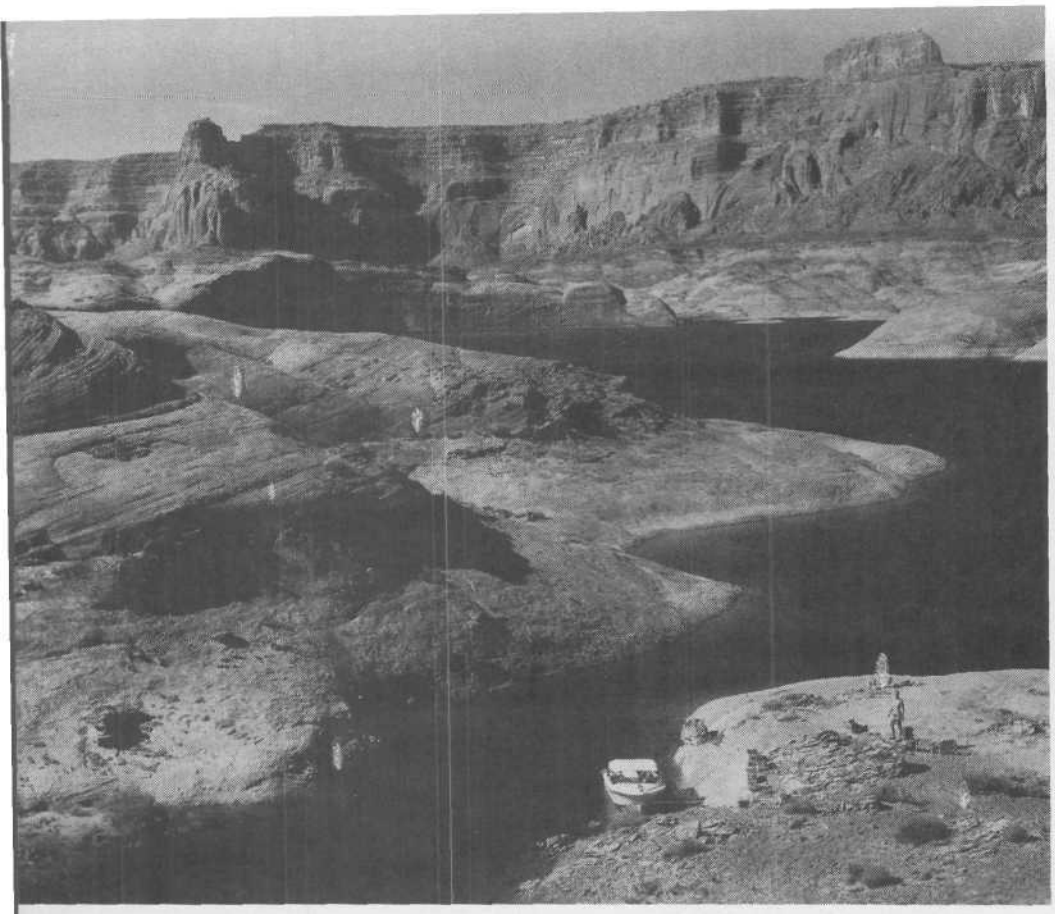
It would be hard to imagine a better base for exploring Lake Powell than Hall's Crossing. It is centrally located to the entire upper lake with its multitude of broad bays, main-channel alcoves and long, narrow side canyons. And on Lake Powell, the term "exploring" is not a euphemism.

As the immense reservoir fills, rising

Hall's Crossing Marina, showing open & covered boat slips, fuel docks and mooring



Many of Lake Powell's branching gorges end in gigantic echoing grottoes such as this one, where seeping springs and eons of time have carved immense caverns from the solid rock.



There are hundreds of sheltered alcoves on Lake Powell that make for ideal boat-camping sites. Hiking above the shoreline is a fascinating part of exploring the lake.

waters give access to elevated benchlands, tributary canyons and adjacent backcountry that has been seen by few if any white men. Thus, Lake Powell boaters who are willing to do a little hiking and free-climbing can, indeed, explore new lands and, perhaps, discover new archeological sites, arches, bridges and other historic remnants or natural wonders.

When cruising Lake Powell from Hall's Crossing, there are certain highlights that should not be missed. How many of these can be seen depends upon how much time is available. Some of the major highlights uplake from Hall's Crossing are the broad expanses of Bullfrog Bay with its sand-dune beaches and immense red sandstone ridge along one side, Moki and Forgotten Canyons with their narrow, sheer-walled branches and cliff dwelling ruins and the soaring, colorful slopes of the main body of the lake between Good Hope and Blue Notch Canyons.

Beyond here and Hite, the steep-walled lake shore is dominated by dark red sandstone. In the Hite vicinity, white sandstone emerges from the lake to form slickrock "beaches" and the sheer walls of narrow Dirty Devil Canyon. Uplake from the nearby Utah 95 bridge, the lake is narrow with colorful, near-vertical walls for miles, until it ends at the lower rapids of Cataract Canyon.

Downlake from Hall's Crossing there are many fascinating side canyons and bays to cruise. Hall Creek Bay is colorful, with plentiful beach areas for those who prefer sandy shorelines for camping, swimming and waterskiing. Lost Eden Canyon offers several deep and narrow branches that are lovely. Lake Canyon penetrates a region of rounded sandstone domes, with many short branches. The better ruins in this canyon are now under water, but other traces of Anasazi Indian occupancy and use can be found beyond where the lake ends.

Annie's Canyon offers another series of narrow, sheer-walled branches. Iceberg, or Wilson, Canyon is a large and beautiful labyrinth of deep, branching canyons. Even a casual cruise up the various arms of Iceberg can take several hours.

Just below Iceberg, the massive butte of The Rincon appears. At one time in the past the Colorado River looped around this gigantic sandstone mesa.

Now, the long-abandoned loop is partially filled with immense salmon-hued sand dunes.

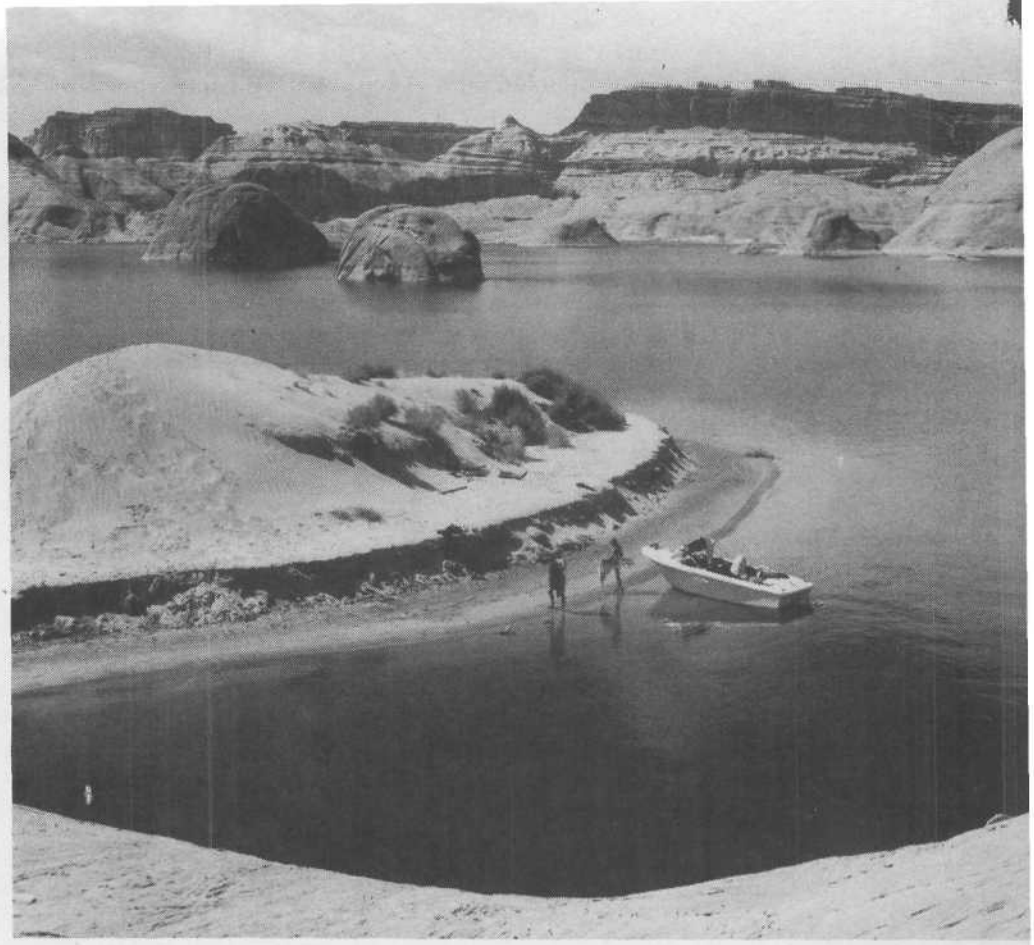
The next highlight downlake is the lovely many-armed Escalante Canyon system, with its winding, sheer-walled main channel and several long tributary canyons. It takes a full day or more to briefly scan the Escalante arm of Lake Powell. One highlight in the main Escalante gorge is a restored cliff-dwelling several miles in from the Colorado River gorge. This site was well protected by a sheer, almost unscalable wall before the rising water provided boaters safe access to the higher, easier part of the trail that goes to the ruins.

Farther downlake, more days and weeks are required for even a quick look at the various highlights of Lake Powell. At Cottonwood Canyon, many of the remnants from the historic Mormon crossing at Hole-in-the-Rock are now under water, but the awesome crevice down which the wagon train descended to the river is still largely above water.

Llewellyn Gulch is spectacular in a different way, and Reflection Canyon is lovely, too, especially on dead calm days when the canyon can live up to its name. The San Juan River arm of Lake Powell is a whole world unto itself. Because of its isolation and distance from the marinas, very few boaters penetrate far up this long arm and its many branches. between the San Juan and the forked canyon that contains Rainbow Bridge there are several bays and canyons that deserve attention. Hidden Passage, Mystery and Twilight all are narrow and twisting, with high, sheer walls of sandstone, and Oak Creek Bay offers a spectacular view of looming Navajo Mountain and the gigantic tilted slabs of colorful sandstone that lie on its lower flanks. Oak Creek Bay has many ideal boat-camping sites.

Downlake from Rainbow Bridge could be called the "lower lake," which is too vast and varied for coverage here. Padre Bay, one highlight area about midway between Rainbow Bridge and the dam, was described in the April 1973 issue of *Desert*.

But whether you have one day to spend on Lake Powell or a month, Hall's Crossing Marina is a good place from which to start, and the outstandingly scenic trip to the marina is a part of such a Lake Powell adventure. □



On Lake Powell, desert dunes make sandy beaches which are ideal for swimming, camping or waterskiing.

Power from

IF YOU happened to travel westward through California's San Gorgonio Pass during the fuel shortage, the powerful wind that retarded your progress may have made you wonder if it could not be used to supplement the nation's dwindling sources of energy. If it seemed like an original idea you may be interested in learning that half a century ago another traveler through the pass, Dew Oliver, not only pondered a similar question, but put his thoughts into action. His goal, however, was just to provide cheap electric current.

Oliver arrived in Seal Beach, a Southern California seacoast town, to promote sales of a tract of land he had acquired in 1925. Old-timers say he assumed the role of a wealthy Texan immediately and that from his wide sombrero to his shining boots he looked the part. His courtly manner made an instant hit with the women of the community. He had compliments for them all, which he distributed lavishly whenever opportunities arose. His acceptance by the men was in sharp contrast with that of the women. They called him a "ladies' man," with implications somewhat less than flattering. Although Oliver was considered a smooth talker, his oratory provided little more than amusement for most of his male listeners. As one of them explained, "We don't believe a word he says, but we like to hear him talk."

After several months, however, Oliver's land selling venture failed and he closed his office to search for a more profitable occupation. While traveling through rural sections of the Midwest, he was intrigued by the large number of small windmills he saw mounted on homes and nearby structures. In investigating further he learned that the windmills were attached to automobile generators to charge storage batteries for operating radio broadcast receivers within the homes. The setup convinced Oliver that the idea could be expanded to produce cheap electrical power on a large scale, so he rushed homeward to formulate his plans.

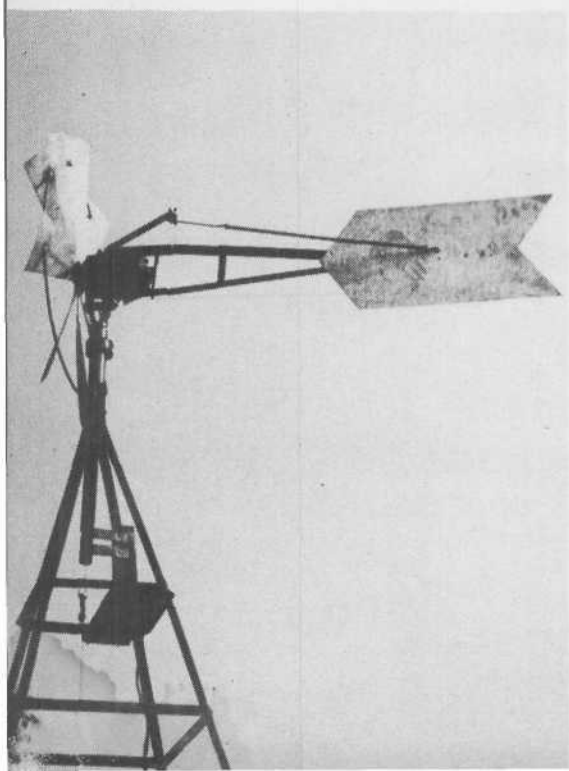
Back on home ground, rational thinking began to temper Oliver's enthusiasm. He realized that he would need a more constant flow of wind to produce electrical power commercially than was required to propel battery-charging generators. He traveled around Southern California for weeks, testing wind pressures and constancy of flow with no satisfactory results. Then one day he began a trip to Indio to inspect some property and stopped along San Gorgonio Pass to get his bearings.

A wind straight out of the West blew his hat off his head and tore a roadmap from his hands. He was elated. Forgetting the purpose for his trip, he spent the next two hours pacing back and forth through the pass testing the wind for duration, direction, and force, then finally exclaimed to his companion, "This is it!"

W.P. Blake, a geologist on an expedition to explore a railway route from the Mississippi River to the Pacific Ocean in 1853, referred to the wind through San Gorgonio Pass as not an ordinary shifting breeze, but a powerful current of air sweeping through the pass from the Pacific Ocean in an apparently unbroken, unvarying stream. He described the phenomenon as cool air rushing in to fill the vacuum created when heated air from barren desert terrain rose upward.

When Oliver found the wind conditions he had been searching for he lost little time getting his project underway. He selected a site near Whitewater and early in 1926 "Oliver's Wind Machine," as it later became known, appeared on the scene. Constructed like a huge steel funnel about six feet in diameter and approximately 80 feet long, it was attached to rollers that rotated around a circular path below. The flared end of the funnel served to increase the wind pressure as it flowed toward the opposite end where aluminum propellers were mounted. The propellers were belted to a generator attached directly below them.

On the initial tryout the propellers turned the generator so fast that it burned out. The second generator, a huge unit that had been used to supply power for Pacific Electric cars in and around Los Angeles, was installed as a replacement. With the wind-generator operating satisfactorily, Oliver turned his attention to financing his operations. It was reported that he incorporated the Oliver Electric Power Corporation in Nevada, capitalized $12,500,000, with stock at $50 a share. Investors responded generously. With "free" wind to drive



Where it all began. Windmill on Nebraska farm gave Oliver idea for large scale development of electricity using wind power. Windmill propelled automobile generator to charge storage battery for operating radio broadcast receiver.

the Wind

by WALTER FORD

the generators, the age-old lure of "something for nothing" apparently proved irresistible to many of them.

The first objective of the new power company was to supply electric power to Palm Springs, about 10 miles from the generator site. However, records available today at Palm Springs show that the Southern Sierras Power Company was already providing electric power to Palm Springs at the time and had been doing so since 1923. A spokesman for Oliver's company listed other nearby communities they were going to supply with electric power, but like Palm Springs most of them were being serviced by another company.

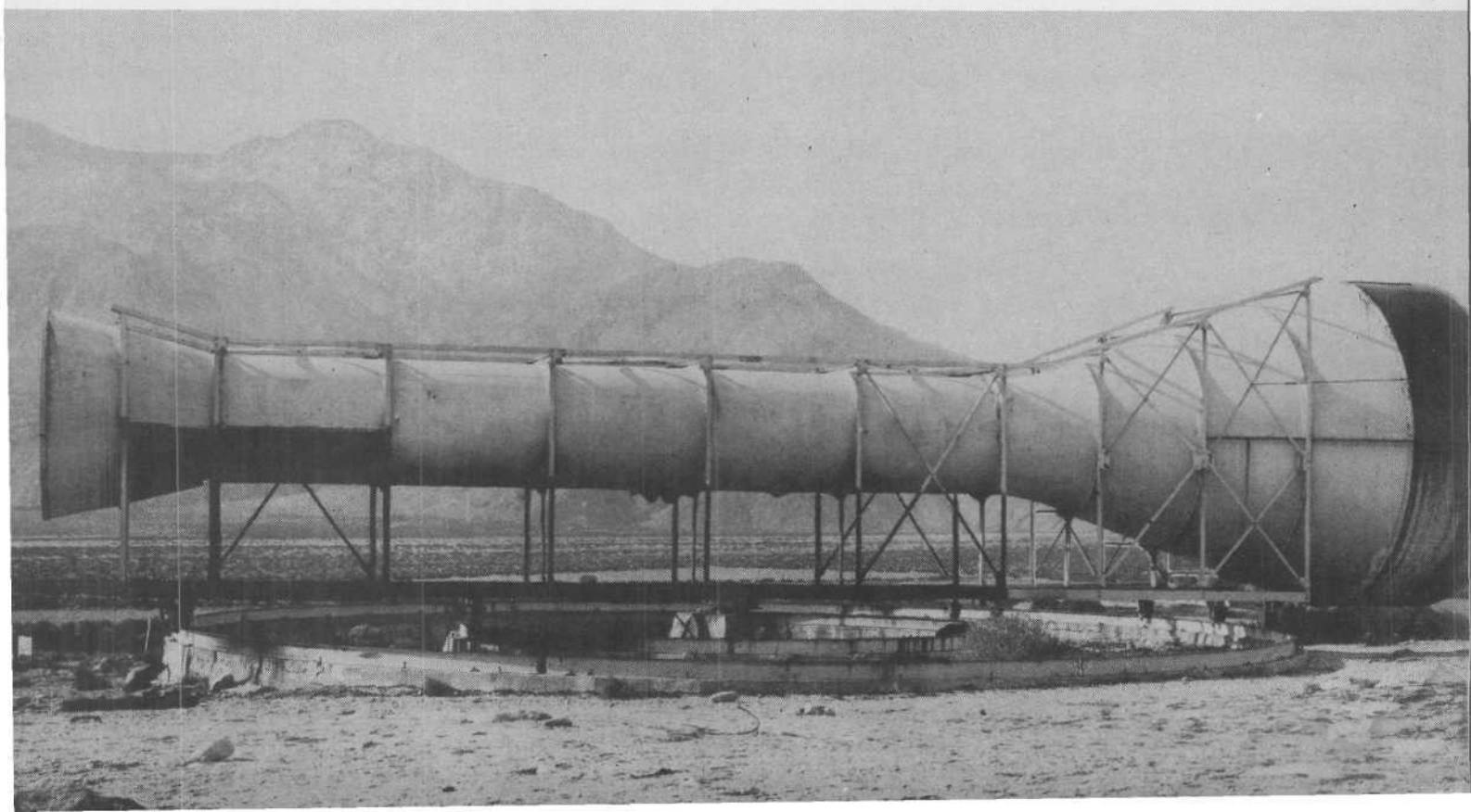
Although the wind through San Gorgonio Pass is reputed to move at a constant rate, there are variations in its rate of flow from time to time. These variations caused corresponding fluctuations in the electric power developed by Oliver's wind generator, which in turn would result in unsatisfactory operation of consumers' electric lights and appliances. At the time it was understood that the situation would be remedied by adding a bank of storage batteries to provide a uniform flow of current, but the correction was never made.

At the rate stock was being sold the wind-generator should have been a bonanza, but somewhere along the line something went wrong and the Oliver Electric Power Company encountered financial troubles and suspended operations. For a long time thereafter, "Oliver's Wind Machine" stood deserted with only the moaning of the wind sweeping through it to provide a lament for its demise. In 1942 it was dismantled for scrap metal and the visible effects of one man's effort to harness the wind passed from the scene.

Dew Oliver attributed most of his trouble to false information and unauthorized statements passed out by some of his associates, but his critics claimed the whole setup was a scheme to sell worthless stock. A scheme that was bound to fail. However, technically qualified observers maintained that the wind-generator was built on sound mechanical principles and needed only competent management to make it a commercial success.

Oliver's contemporaries used to say that he was 50 years ahead of his time and recent developments with wind-generators tend to confirm their beliefs. Accelerated, perhaps by the late fuel shortage, manufacturers are producing a variety of power plants ranging from huge 100-kilowatt units down to others with modest outputs of a few hundred watts. And one enterprising Southwest builder is now offering homes for sales complete with wind-driven power plants in desert areas not served by power companies. □

Oliver's wind generator as it appeared on the desert near Whitewater around 1932. Propeller was located in opening at left end of tube with generator mounted below it. Housing which covered lower part of structure originally had been removed.



Owls on my Hat

by MARY FRANCES STRONG

Photos by Jerry Strong

IT WAS DUSK when we opened the flight door and waited with mixed emotions. Our hearts were pounding from excitement while pangs of regret tugged at our heart strings. Before long, Squeaky stepped forth onto the landing board. In a few moments she flew down to a chair near us and gave the cheery "tee tee tee" sound which meant she was pleased. We were startled when from across the canyon came the soft call of an owl. Squeaky listened for a moment, looked at us, then lifted into the air on silent wings. We followed her flight until she was lost from sight.

Always the cautious one, Topper hesitated at the flight door and listened to the night sounds. At last, deciding all was well, he flew to the rooftop and paused briefly before entering the night sky.

This was the big event. The culmination of seven months of loving, raising and teaching. Tears of sadness as well as gladness, filled my eyes. Jerry's voice sounded slightly husky as he whispered, "Good luck, Topper and Squeaky." I couldn't say anything. Our nest was empty and already it was too quiet and lonely.

How does one tell the story of what became, perhaps, the most rewarding experience of our lives? I guess by starting at the beginning.

Less than an hour after his telephone call, Warden Doug Baker, of the California Department of Fish and Game, arrived with three tiny barn owls. Two were prostrate on the cage floor while the largest of the trio leaned shakily in the corner. "I doubt if you can save the smallest one and even the second largest seems pretty weak." Doug commented. "We will do our best," was my reply.

Approximately two weeks old, the little fledglings (*Tyto albo*) were orphans. Though federal and state laws protect raptors, their mother had been shot when she defended her babies from nest robbers. The baby owls had been without food or water for over 24 hours when the culprits were apprehended and the owlets brought to us. Like most wild birds, their growth is rapid and a long delay in proper nourishment at such a critical time can have fatal results — a fact we would later learn.

We immediately administered water to our dehydrated charges. Doug held the smallest — a fist-size ball of down from which protruded an oversized beak — while I fed water via an eyedropper. "I can't believe it," Doug remarked in amazement after we had given three dropperfuls to each one. They had revived to a point where even the smallest owl had raised her head and loudly hissed at us!

The next step was to give the little owls a meal. Dog food, in the form of meatballs, proved a quick emergency substitute for the mice normally provided by Mama owl. Let me caution here, it cannot be used as a permanent food. Owls are raptors and they eat their prey whole. In captivity, they must be fed a specially prepared mix such as zoos use, if they are to survive and be released into the wild. Of course, they can be fed mice daily, if a supply is available. After their first feeding, the little owls went sound to sleep in a towel-lined box.

Jerry arrived home in time for the next feeding. We developed a system of wrapping the little ones in a towel much as you would a baby in a blanket. While Jerry held each one, I would gently tap his beak and make "peep peep" sounds. Hopefully, this action would stimulate him to open his mouth. At first, however their weakness made it necessary to force feed. A nesting box had been quickly prepared and the triplets were put on a 'round-the-clock, three-hour feeding schedule.

We had simulated a sunken nest, mainly to keep them warm. This was a mistake. What goes in must come out. At a midnight feeding we found our charges up to their knees in excrement. Instinct had sent them to the edge of the nest but the rounded edge had allowed the waste to roll back down! Each baby owl had to be carefully washed and quickly dried to prevent his taking a chill. For drying, a light bulb in their box did the trick. After repeating this bath detail three times, we hit on an idea which saved the day and made life more pleasant for all of us.

A new nesting box was lined with kitty littler and one end covered with a strip of carpet six inches wide. The little owls stayed on the carpet and moved off to the other end to excrete. Not only were they now "toilet trained" — they had a private room with bath!

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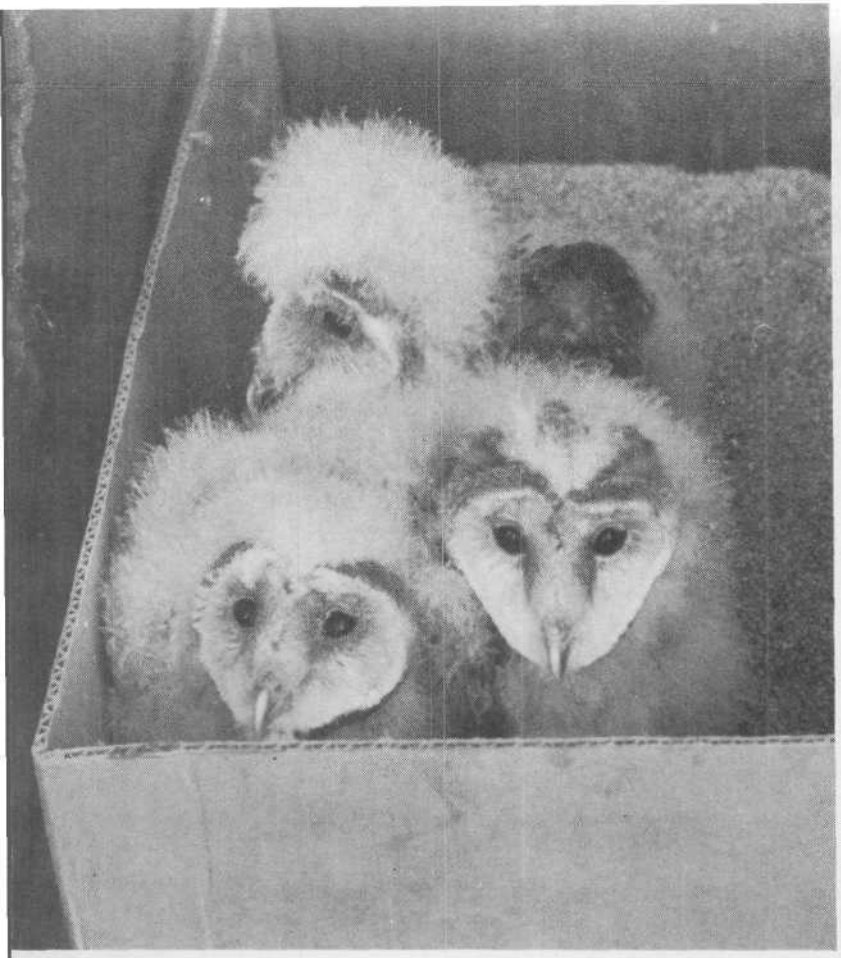


At three weeks of age, our baby owls stayed pretty much together and slept most of the time.

By the third day, all three babies readily opened their mouths when I peeped and tapped their beaks. Those waiting to be fed made impatient squeaking noises until their turn. I now could hold and feed them. The smallest one always fell asleep in my arms after the last bite. They were filling out and their daily growth was easily visible.

It was apparent our 'round-the-clock schedule agreed with the owls. However, Jerry and I were having problems when the second week rolled around. We just were not used to getting up for an hour every three hours all night long! Looking at each other through bloodshot eyes, we decided between yawns we were a little old to be the parents of triplets. Nevertheless, the ultimate rewards were worth the lost sleep.

Though size differentiated the little owls, each had a distinctive personality. Henrietta, the largest, was rather quiet — almost prim and proper. We felt the name suited her. How did we know their sex? We just guessed, and surprisingly enough, were right. Topper was so-named because the down on top of his head was extremely long and fluffy. His temperament seemed indicative of a male — careful, cautious and restrained.

The little one had survived but was still weak and unable to stand. She "sat" on her knees. When awake, she squeaked constantly for food. Naming her "Squeaky" was apropos. "That is a terrible name for a girl," Jerry complained, but nothing else seemed fitting.

By the third week we were feeding every four hours and the changes in our charges were startling. Henrietta seemed to grow between feedings. Topper was fast catching up to her. Squeaky was growing but still clomped around the box on bended knees. We began to wonder if she would ever be able to walk properly. They were all very alert and beginning to take an interest in the world around them.

Feeding time was fun time. Food for each baby owl was weighed, placed in separate piles, wrapped in aluminum foil and heated in the oven to body temperature. A special feeding box was used and they quickly learned to line up along the edge when placed in it. Our procedure was one bite each down the line, etc. Henrietta ate lady-like and well. Topper was always a bit indifferent to the food and ate less than the other two. Squeaky hollered constantly, tried to be fed out of order and ate everything the others left. She was the comedian of the group. Her cheery ways and antics kept us smiling.

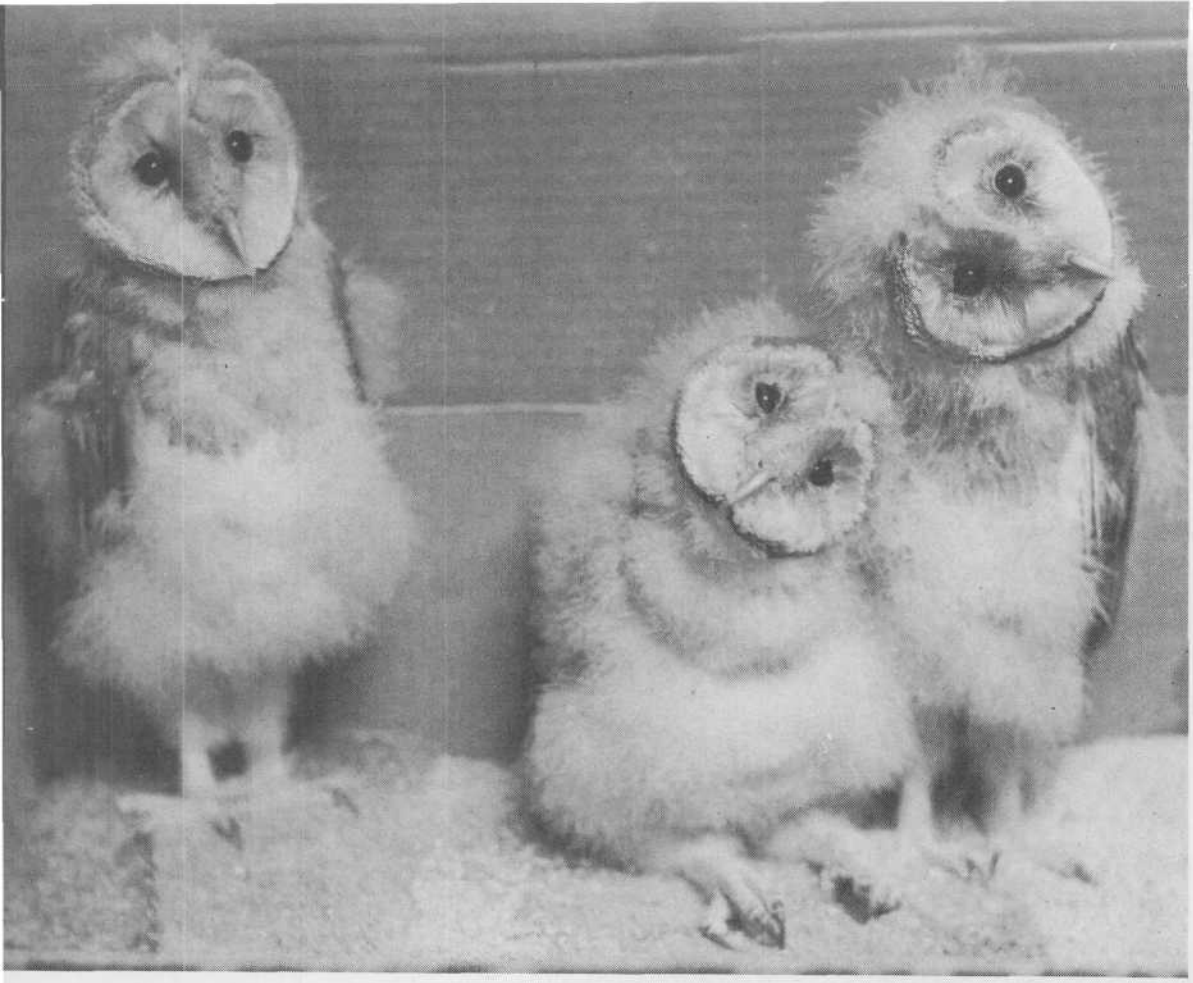
After a month with us, their adult plumage began to appear. We had also been able to gear down to three feedings a day — 7 a.m., 3 p.m. and 11 p.m. At last, we could enjoy seven straight hours of sleep! Following the morning feeding, the little owls snoozed until three o'clock. After this feeding they were very active and seemed to enjoy watching me get dinner. They would preen their feathers and play with each other — sometimes quite competitively. Now and again, Henrietta and Topper would "gang up" on little Squeaky. The two larger ones had also begun to sleep "standing on one foot" — adult fashion.

Squeaky was still on her knees and usually slept propped in a corner. I checked on them regularly and one morning I looked in to find Squeaky on her back, legs stiffly in the air! To say I was alarmed is the understatement of the year. "I don't believe it. She can't be dead," I protested to myself as I reached in to lift her out. As soon as my fingers touched her, Squeaky raised her head and started peeping for food. Yes, young owls often sleep on their backs and sides. Our owls did — all three of them. Quite possibly, ornithologists have observed them doing so. However, I have not seen this fact mentioned in any books and would never have believed it if I hadn't seen it with my own eyes.

Growing rapidly and sleeping less, our little owls were fun to play with. Jerry would take his pen and run it along the edge of their box, then up and down the sides. They were entranced and would follow his every move with their big eyes. Eventually, he laid it in the box. Topper was the first to summon enough nerve to walk over and pounce on it.

This was the beginning of a training program to encourage them to "foot" — a term used when a raptor clutches quarry in its talons. Nature has provided footing instincts in the fledglings but it must be developed, if they are to survive in the wild. Since we could not "show them how," as does Mother Owl, we used several methods to perfect their hunting techniques. They had outgrown their baby box and a more commodious one was prepared. All was going so well, we were unprepared when disaster struck!

Henrietta collapsed one morning and

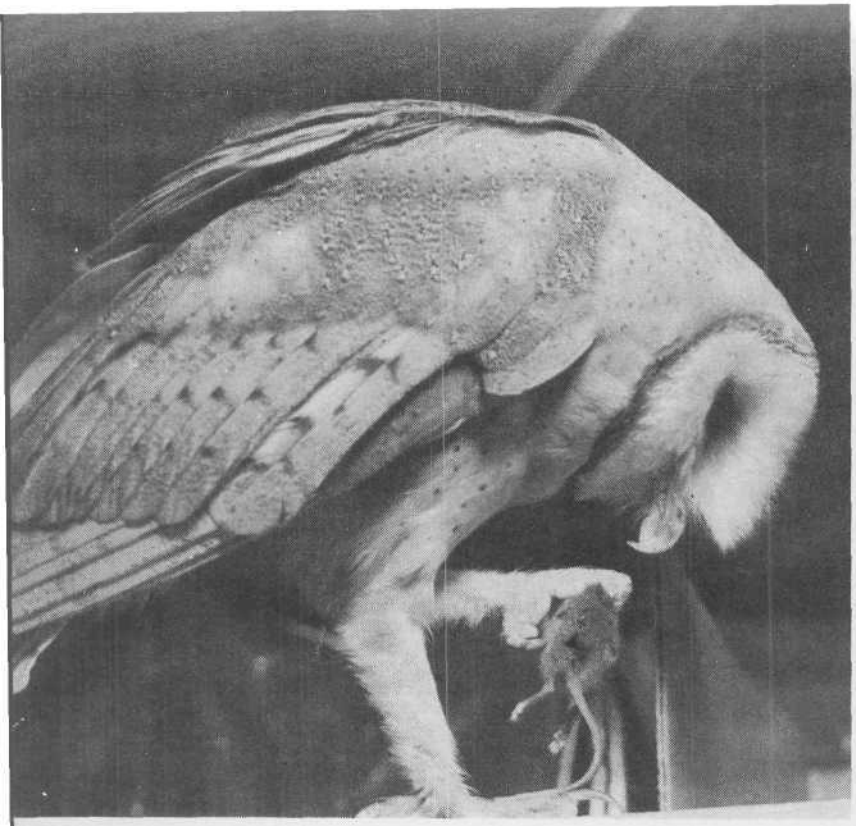


At four weeks of age, Topper's [left] feathers were coming in. His head "down" was almost gone and he looked like he was wearing a "tu tu." Henrietta [right] was becoming interested in the world around her. Squeaky [center] was a ball of fluff and still sat on her knees, unable to walk properly. Below: Topper [left] and Squeaky were now able to fly and chose the cookie jars for their indoor perches. Squeaky, thanks to special medication, was on her feet!

couldn't get up. We rushed her to Dr. C.L. Pitts at the Studio City Animal Hospital in San Fernando Valley — a 65-mile drive over the mountains. A highly respected veternarian, Dr. Pitts is one of the few men in California who has had special training and long experience in treating raptors.

He quickly recognized Henrietta's problem — rickets, the dreaded malady of captivity. Though we had been giving the owls special vitamins and calcium, the amount had not been enough to compensate for the period they were without food and we lost her. We were devastated when Dr. Pitts told us Squeaky's walking on her knees was also rickets. Large doses of calcium lactate (not phosphate) were prescribed for the remaining owls. Since they had yet to reach Henrietta's stage of development, the treatment was successful.

Topper became the leader of our "fearless two-some" and was the first to climb out of the box. We found him happily perched on top of Jerry's photo enlarger, six feet above the floor. Yet, he could not fly! His mobility was both amazing and amusing. Using his wings much as we do arms, he could climb like a monkey up anything he could grasp



Known as "Nature's Mouse Traps," our training program for Topper and Squeaky included helping them perfect their hunting techniques. Barn Owls, in particular, aid in keeping the mouse population from exploding.

with his talons. Little Squeaky tried to imitate his every adventure and often found herself in trouble.

It seemed only a few days before their adult plumage had almost replaced the down and both owls were flying. They chose their own "sitting perch," over my meager protests — two crock cookie jars on top of the refrigerator. From this vantage point they could perform their fun and games in our long, narrow kitchen. I learned to cringe at the sound of falling items followed by happy "tee tee tee's." We cleared the decks and let them have at it. Again, it was a matter of survival. They must develop strong wings.

Their favorite sport was also mine, though I pretended differently. While standing at the sink, a rush of air would forewarn of an imminent owl's landing on my head. They soon perfected their technique — cast off from the cookie jar, fly straight and hard like a bullet to a touchdown on my curly top. As they became more proficient, each landing caused quite an impact. Jealousy finally reared its ugly head. After the time they both landed and violently squabbled over who was to be King of the Mountain, I donned a straw hat. From then on, it was a game we all three enjoyed.

Now that they could fly, we were able to quarter Topper and Squeaky in our empty hawk mew. Nocturnal habits were developing and they slept most of the day. We would bring them inside in the late afternoon. Though they had been together in the mew, they would always greet one another by touching beaks whenever brought inside or taken outside to the mew.

Not only were they active but very curious. Any cupboard door left ajar barely a crack, they could open. Then, it was inside to hunt for mice! We had prepared several "playthings" for them to pounce on. Their favorites were two large cotton socks with double knots tied in them. Upon being brought in, each own would rush to his "mouse" and carry it around. The "mouse" would be footed, pulled and torn. The more ragged they became, the better the owls seemed to like them.

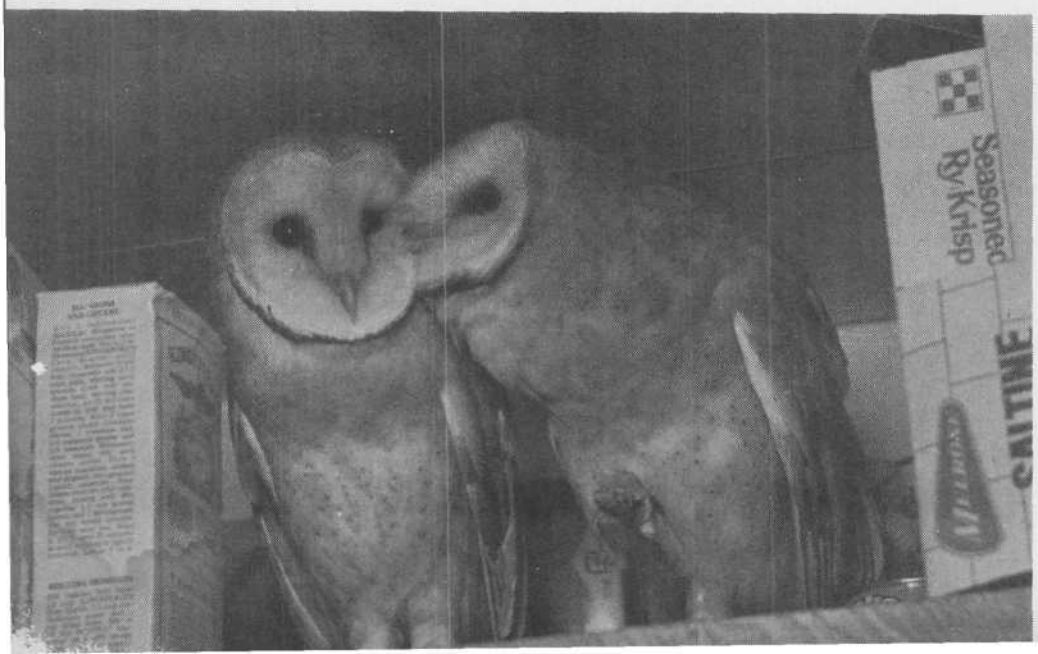
Some healthy squabbles occurred over their "mouses" and they would chase one another up and down the kitchen. Anger would rise if their "mouse" was stolen and some footing of the culprit was in order. Squeaky was very possessive about hers and held on to it even while she ate her dinner. Knotted the way they were, the "mouse" was almost the size of the owls, though, of course, very light weight.

The "mouses" were for playtime only and we didn't allow them to be carried into the mew. Because we were going to be away for the day, we placed their toys in the mew for entertainment when they woke up. The next morning Topper was sitting sedately on a perch instead of clamoring with Squeaky at the mew window to come inside. We looked for the "mouses" and could only find one. There was only one conclusion — Topper had swallowed his! How, we will never know.

As the day progressed, it became very apparent he was uncomfortable and was not going to be able to cast it up. So — off to the San Fernando Valley and Dr. Pitts. Fortunately, medication gave the needed lubrication to bring it up.

Life with our owls had settled into a routine and the enjoyment of our playful charges had increased. Living intimately with them gave us glimpses of their personality and a familiarity not

Topper and Squeaky showed a great deal of affection for one another. They also loved to explore the interior of a kitchen cupboard.



possible otherwise. Topper and Squeaky were devoted friends. They regularly touched beaks and preened one another. The one receiving the latter would stand with half-closed eyes, enjoying it every bit as much as a human having a massage.

They were very affectionate toward us and would light on a shoulder to preen our hair and nibble at an earlobe. Jerry was braver than I. Squeaky really enjoyed ear nibbling. She also liked to take the lobe in her talons. It was with trepidation I once submitted and waited what seemed an eternity for her to let go of my earlobe. She and Jerry played the game regularly — once was enough for me.

When Squeaky and Topper were six months old a decision concerning their future had to be made. The California Department of Fish and Game had given us permission to make this decision. We had three choices — they could spend their lives with us, be placed in a zoo or released to the wild. Our personal preference was to keep them but it is also our deep belief that, if possible, all creatures should be free to live their lives as nature planned. We anguished over our alternatives for over a month.

It must be emphasized that all raptors, including owls, are protected by both Federal and State laws. Possession of any owl, other than the Great Horned Owl, is illegal and subjects the offender to fine/imprisonment or both. In addition, possession of designated species of raptors is limited only to individuals with a *valid falconry permit.*

Our entire rearing and training program for Topper and Squeaky had been geared for their release to the wild. Our decision was to give them their freedom. The time had come and they were gone.

It was obvious a male owl had been courting beautiful Squeaky at night while she was in the mew. With a mate at her side, Squeaky's destiny seemed assured. Cautious, careful Topper was quick of flight and foot. He, too, should fare well. Since we live on a sparsely populated, desert mountainside, we were able to release them into a natural habitat. And — we had one ace in the hole. Should they need food, they would not be afraid to return to us for a handout.

We have not seen them since their departure from our nest but we have evidence they are around. Night visits have been made to the front porch and pump house. For the first time in years, a mouse hasn't built a nest under the freezer on the front porch!

Sometimes in the night, we are awakened by the soft owl calls in the canyon below our bedroom. We walk out on the deck and call their names but they do not come to us. They are flying free and busily preparing to reproduce their kind.

Whenever we hear an owl call, we will think of them and the immeasurable happiness they brought us. The most rewarding summer of our lives will also be recalled as the time when I would say to Jerry, "Hey, look at me. I have an owl on my hat." □

Above: Now in complete adult plumage, our owls resembled "angels" as they awakened in the mew. Right: immediately after being brought inside, each owl would grab his favorite toy— a sock "mouse." Though Squeaky's was battered into a semblance of a rag mop, she carried it everywhere— including to my hat and held it while eating her dinner.

Desert GHOSTS by HOWARD NEAL

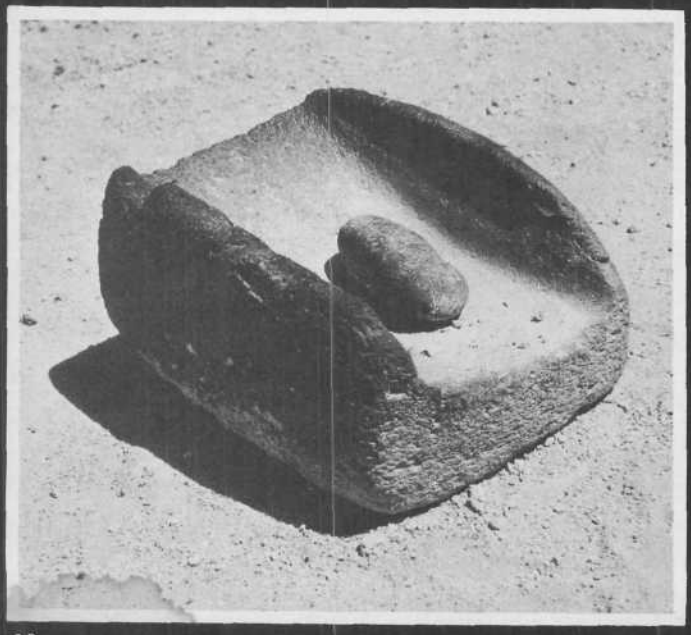
Montezuma Castle

LOCATION: Montezuma Castle National Monument is located approximately one mile east of Interstate Highway 17, some 60 miles south of Flagstaff, Arizona.

BRIEF HISTORY: The world shook. The ground appeared to open to the very center of the earth. The sky turned a brilliant red as molten rock spewed forth over the land, and the heavens seemed to fall as volcanic ash covered the countryside. In the year 1064, the Mogollon Indians, of northern Arizona, must have felt they were watching the whole world explode as they witnessed the birth of the mountain to be known as Sunset Crater.

The tremors stopped, the earth cooled, and the Mogollon discovered that their land had become more fertile. The moisture-retaining qualities of the volcanic ash had turned the land into a potential garden.

That garden land attracted others from afar. The Anasazi came from the Mesa Verde country to the northeast, and the Hohokam came from the Verde Valley and other regions of central Arizona, to the south. Representatives of three cultures found themselves farming in the shadow of Sunset Crater and they merged to create another, known as the Sinagua.



It took only a few generations for the flow of migration to reverse itself. The fertility caused by the ash was quickly dissipated and population growth forced the Sinagua to find other lands. The water of the Verde River and Beaver Creek proved to be a compelling magnet.

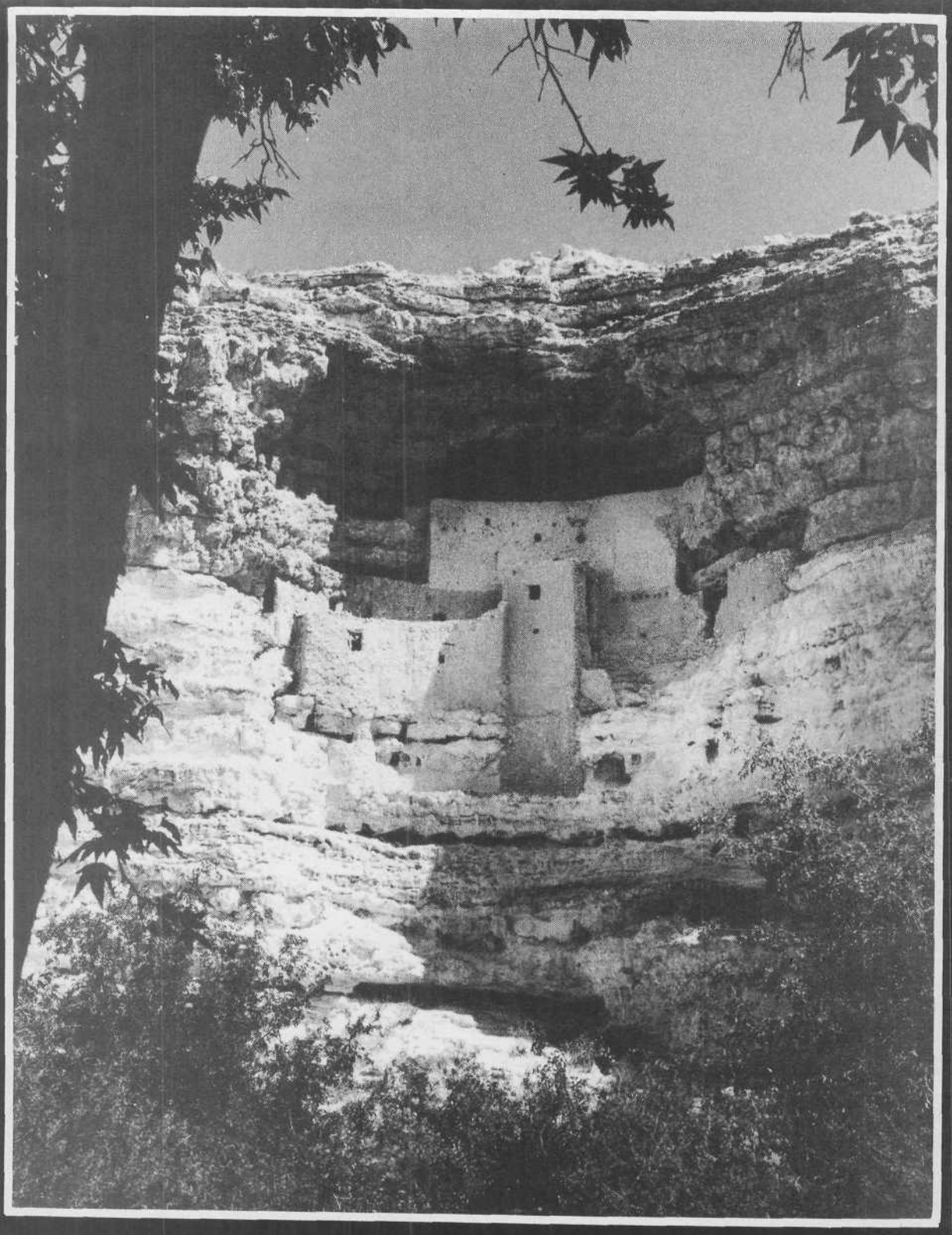
Many of the Sinagua moved south into the Verde Valley in the early 1200's. They farmed the land and, at first, they lived in individual homes and small pueblos. As their numbers grew there apparently were conflicts. The buildings grew larger, and took on many of the characteristics of forts.

One combination dwelling and fortress was built in a cave high on a cliff overlooking Beaver Creek. White settlers were later to name the cliff house Montezuma Castle. They assumed that the long departed Indians had been Aztecs.

Terraced and curved to fit the arc of the cave, the dwelling was built of limestone and mortar. Construction took nearly the entire century between the years of 1250 and 1350. When Montezuma Castle reached its full size of five stories and 19 rooms it served as an apartment house for nearly 50 people.

As a cliff dwelling the Castle was also an ideal fort. Only two trails approached the structure, and these were guarded by small caves which, it seems, were occupied by sentries.

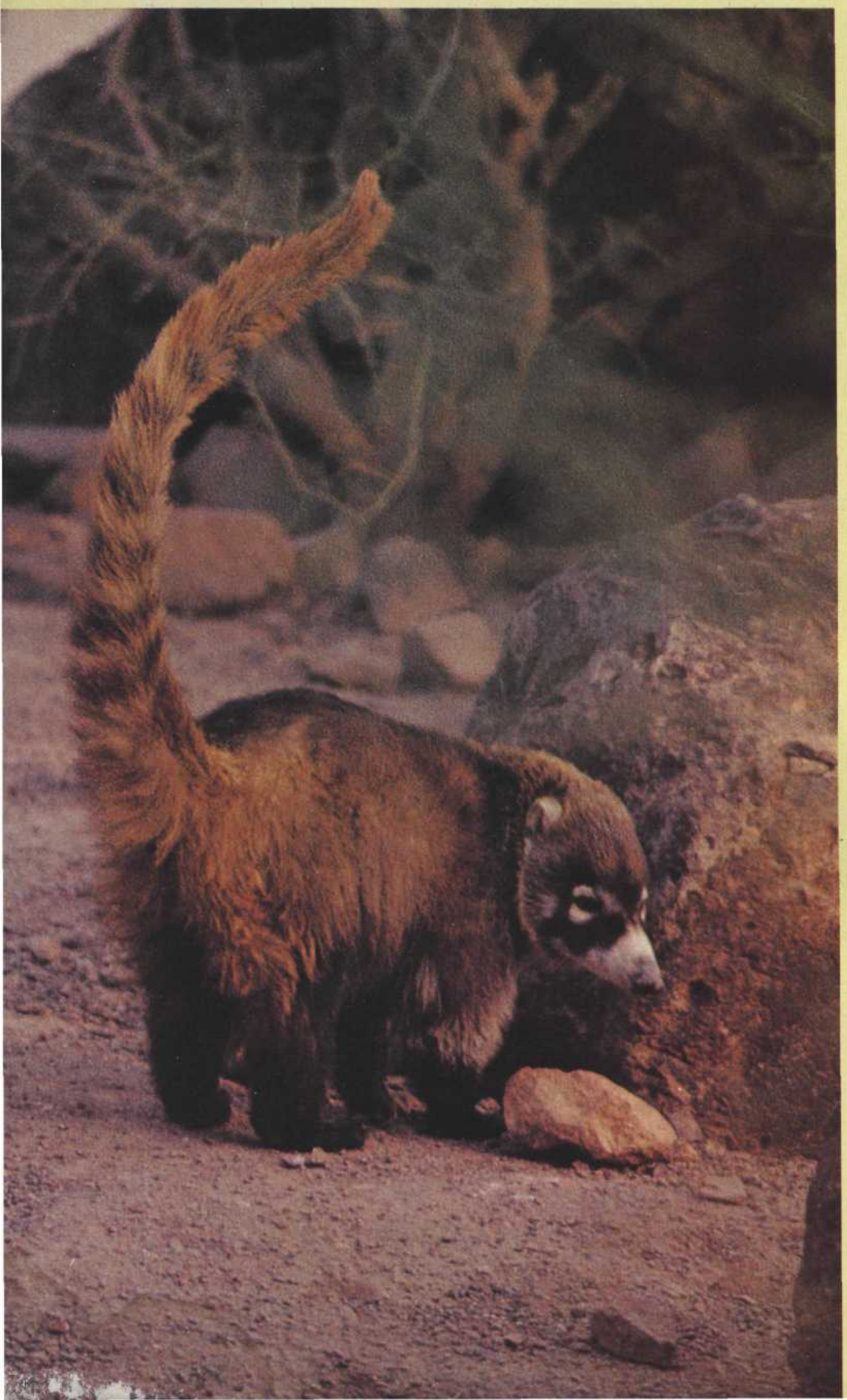
As many as 200 Indians lived in the small area along Beaver Creek near Montezuma Castle. Perhaps population pressures again became too great. Maybe the Sinagua people were attacked by another tribe and expelled from their land. Or, perhaps drought forced an exodus. For some reason, perhaps a combination of these, the Sinagua left Beaver Creek in the early 1400's and Montezuma Castle became one of America's earliest desert ghosts.



The cliff dwelling above Beaver Creek, in the Verde Valley of Arizona, was named Montezuma Castle by early settlers who thought it had been built by Aztecs. The 5-story structure, which took a century to build, was abandoned in the early 1400s. Opposite page: A metate, a Concave grinding stone used for grinding corn, and a mano, a hand-held grinding stone, are among the artifacts on display at Montezuma Castle National Monument. At the Visitor Center are exhibits of Indian weaving, basketry and pottery. Photographs by Howard Neal.

MONTEZUMA CASTLE TODAY: Montezuma Castle and 842 acres of surrounding land have been preserved as a National Monument since 1906. The National Park Service provides visitors with both guided and self-guided tours, a park-like environment with pleasant, tree-shaded picnic sites, and an excellent Visitors Center. Although it is no longer permissible to enter the Castle, the tours include visits to other cliff dwellings and a diorama explains Indian life as it was some 700 years ago. Visitors Center exhibits show many artifacts from the cave dwellings including examples of pottery, basketry, weaving, jewelry and tools. Whether it be for an hour or an entire day, a visit to Montezuma Castle is a must for any traveler who finds himself in, or near, Arizona's Verde Valley. □

THE COATIMUNDI



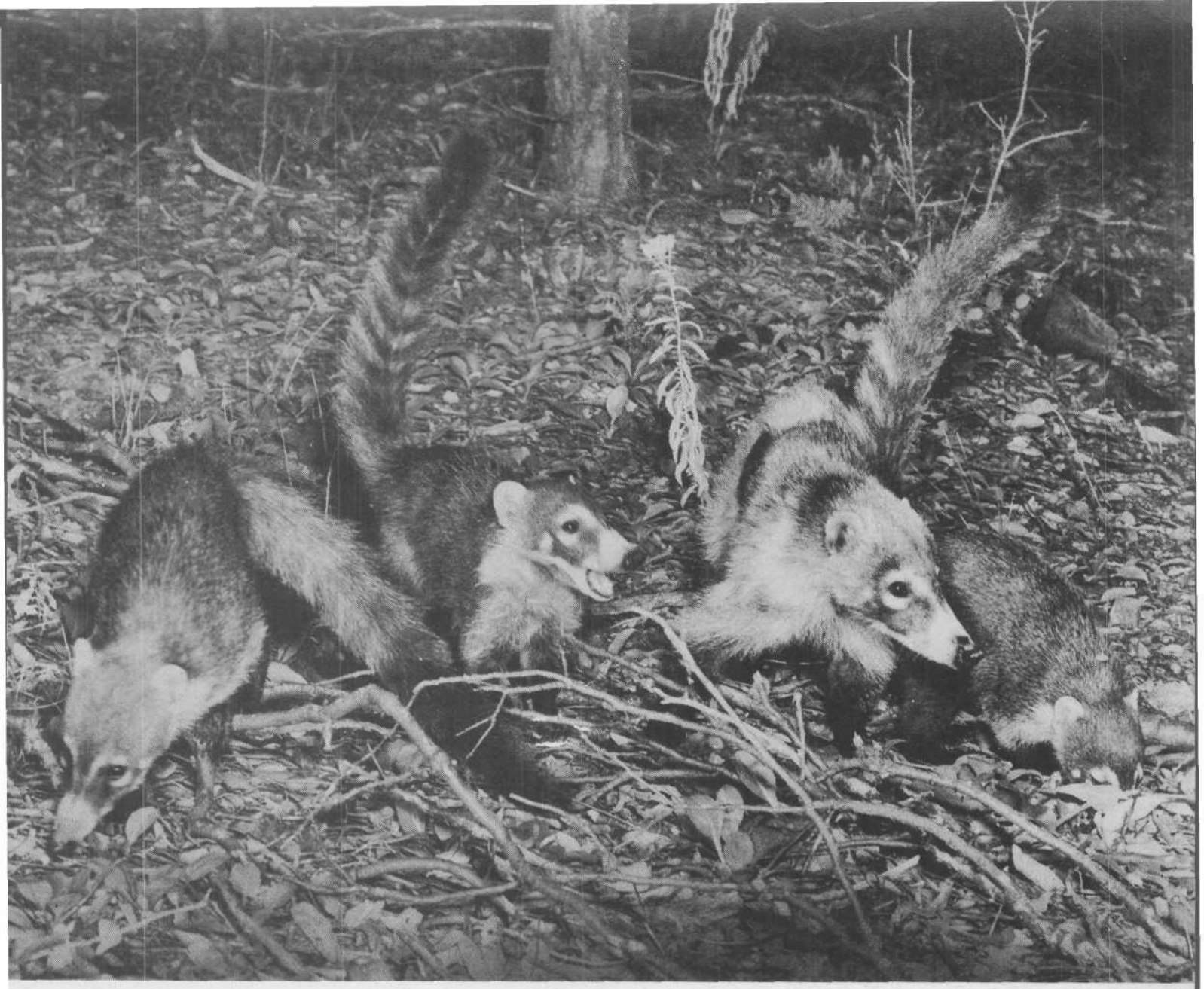
by K. L. BOYNTON

COUSIN to the raccoon, the coatimundi hails originally from Central America and points on down south. Why this tropical animal should extend its range up through Mexico and still northward into the desert Southwest is anybody's guess. The fact of the matter is, however, that it is already well established in southeastern Arizona, a resident, too, in eastern New Mexico and around Big Bend, Texas. One turned up in northern Arizona, another in northern Oklahoma.

The coatimundi clan, while adhering to the tribal facial decoration in principal, reverses the color scheme. Theirs is a white mask on a dark background, instead of the black mask on light fur favored by the raccoons. The face, too, is strictly coati, being pulled out into a long muzzle at the end of which is a rubbery, very flexible nose. Likewise peculiarly coati is the extra long tail, ringed of course in accordance with family tradition. But when its magnificent length is held aloft in the unique coati fashion, it becomes a kind of tribal flag, both decorative and highly useful for communicative purposes at the same time.

A long slim animal with medium long legs, the coati can make some 17 mph for a short sprint, but probably wouldn't bother if there's a tree handy. A far better and faster climber than the stockier raccoon, the coati is more squirrel-like in its tree speed and balance. Indeed it should be, for back

Left: A lone coatimundi.
Photo by Norwood Hazard.
Opposite Page: A coati family foraging for food.
Photo by H. L. Chaffee, Western Ways.



home in the tropics coatis spend most of their time upstairs. As is to be expected, evolving thus for arboreal life, the clan produced many tree-going specializations. Each hind foot, for instance, is equipped joint-wise to turn completely backwards so that a coati going down a tree has good rear traction. The long tail is another tree plus. Waving from side to side it acts as a kind of balancing pole useful in walking along high branches. Not being prehensile, it cannot be curled around anything for hanging on opossum fashion, but it can be flung over a vine or branch for steadying or, by pressing it against a branch, the animal can use it as a kind of brake when descending. The old life in the tree also shows up in the coati's ability to reverse directions by simply sitting up and pivoting on its hind legs — a habit interesting enough, carried over when operating at ground level where no space economy is needed.

While adroitness in a tree is *the* thing in tropical forests, more ground work is called for in the new dry environs to the north. Here, the palo verdes and mesquite thickets are O.K. to climb around in, but certainly unsatisfactory for the old style 30 by 15-inch globular-shaped tree nests so useful in the tropics. So the coatis, adjusting to the different accommodations offered in their new neighborhoods, have traded penthouse dwelling for the basement, residing now in spacious caves, or in a single-dwelling crevice hide-away, as the case may be. For let it be known here that what is true of one coati may not indeed be true of the next one, if the first happens to be a lady and the second a gentleman. In coati society, it appears, the twain is not always met, and what is conduct for the one is not conduct for the other.

Thus it was revealed in zoologist J.H. Kaufmann's pioneer study in Panama, and the more recent ones in Arizona and other U.S. points by several biologists and by naturalist B. Gilbert that the ladies, plus the teenagers, plus the latest youngsters from gregarious bands, sleeping, foraging, dining and socializing together. No gentlemen are allowed, being forcibly excluded by the band matriarchs.

The day begins early with such a band in Arizona, for example, when under the leadership of an adult female the members leave their sleeping cave and, tails held aloft coati-style, fare forth single file bound for the foraging area. The line is strung out, the animals following the trail by scent, and interspersed in the

ranks are adults who keep the wandering youngsters somewhat corralled. A guard brings up the rear. Reaching the foraging ground the file breaks up with everybody young and old putting that old coati snout to work, poking under logs and amongst the fallen leaves and ground litter. Built for the dainty art of such rooting, with its pad of gristle and flexible action, the coati snozzolla projects well beyond the lower jaw and, according to anatomists W.I. Welker and G.B. Campos, is remarkably specialized for tactile sensitivity.

Besides being tops in touch, the long nose has inside its length a fine array of smell receptor tissue which, picking up the faintest of odors, shoots the information along to a well developed smell headquarters in the brain. In short, the coati has a very keen sense of smell useful not only in food finding but in keeping the animal informed of what is going on about it. Even when foraging the coati stops frequently to sit up and sniff hard, checking up on the state of things. Smell also keeps the band together, laggards easily following the scent trail.

Naturally enough, successful food finding calls for something besides nose work. The coati has very strong shoulders and heavy forearm muscles and its forefeet are equipped with tough blunt claws. Biologists O.C. Wallmo and Steve Gallizioli, observing a band in Arizona, particularly admired their digging skill: a stroke with one forefoot sweeps the ground litter aside and in a twinkling the coati is munching what its nose said was there. How about under that big rock? A simple bit of front claw work and over it goes, the coati pouncing on a surprised lizard. Yet, with all this preoccupation with food getting, the coati is no pig. In fact, the band keeps up a kind of informational chatter, the adults obviously calling others, and especially the youngsters, to a good find.

Little coatis seem to do a lot of fooling around which is par, I guess, for offspring two-legged or four. A favorite pastime with the Wallmo-Gallizioli band was wrestling on a log. Three or four were involved at a time, the ones being knocked off scrambled up the hill to forage again, while others ran down to take their place. The playing youngsters rushing up and down the trees and along the branches also served as unknowing but exceedingly efficient bush beaters. Their frolics upset tree lizards which, dropping down to escape, landed right in the midst of coatis foraging below.

All was peaceful at this coati picnic until one of the ladies, sniffing suspiciously, got a whiff of biologist. A warning sound, and the band simply exploded in all directions, up and down trees, over logs, around boulders, crashing through the brush. Coatis everywhere! And suddenly, not a coati could be seen.

The female-young band set up is in operation about six months of the year. It is a time of development and training for the young and such an alarm system with quick reaction on the part of the band members plays an important part in foiling predators.

While all this is going on among the ladies and offspring, do the excluded males in turn form their own convivial bachelor bands? Not so. Each one resides by himself with a walking and eating territory and private rocky retreat, all of which he's prepared to defend when he can't avoid it. Actually, confrontations between equally morose and solitary gentlemen are rare, since most seem to believe that by shuffling busily along in that flat-footed coati fashion and just not seeing the other fellow is an excellent way of keeping out of trouble.

With the ladies, however, it's different. Usually only about half the size of the big males, the females are always edgy. Responsible for the active defense of their band, they are quite ready to launch a slashing attack with those long pointed canine teeth against an enemy. Or, for that matter, equally willing to pitch onto any brash male seeking to join the group before the breeding season officially rolls around. At the proper time and only then is the welcome mat put out.

Back home in Panama, for instance, such an occasion is scheduled so that the males rejoin the group just at the fruit is ripening and there is plenty for all. After a gestation period of 71 days, the three to four youngsters, blind but well-furred, are born in the tree nest. Their eyes open in about 18 days and development is fairly fast. By the time they are big enough to be out and running with the band, fruit is handy on the ground, making their provisioning considerably easier. Food seems to be the key to behavior here, for while it is abundant the entire clan stays together, everybody dining on fruit. But as the weeks go by, the supply decreases. The females and young begin foraging on the forest floor again for tubers and insects. The males, however, begin to be more carnivorous in taste, turning to rodent diet. They leave the band, moving out by themselves hunting the larger verterbrate prey.

Zoologist N. Smythe, pondering this timely exodus, believes it an important move for species welfare. In the face of limited food supply, the tribe starts eating different groceries: the females and young foodstuffs easier to find, the males more difficult prey harder to catch and overcome. Net result of such a division of food resources is that more females and young are bound to survive. This is a plus factor under any conditions; it is particularly so in this new arid region, for the coatis have brought their same old ways with them in their northward movement.

In Arizona breeding takes place March through June. The youngsters have pretty well arrived by August and during this time males are around. Probably, as Gilbert points out, they take over the defense of the band while the pregnant females are heavy and clumsy and later engaged with the brand new offspring. By September, however, the ladies are back on the band-management job and the males move out.

Actually the scantier food and solitary living is rough on the males and it takes a hardy one to handle the bigger prey. Hence, from an evolutionary point of view, selection has favored large size in the male, which probably also is the reason for their being so much bigger than the females.

The coati grocery list is also of scientific interest from another angle. It seems that they all enjoy insects, caterpillars, scorpions, tarantulas and snails. Obviously many of these menu items can sting, or have other noxious qualities. How do coatis handle this problem? Zoologist Lloyd Ingles, watching them in Yucatan, Panama and Mexico, saw how. Such an object de lunch is given the works when caught: a rough and tumble rolling on the ground, the coati batting it back and forth rapidly from one tough paw to the other until stingers, wings, hairs or whatever the case may be, are rubbed off, leaving only a palatable morsel safe to eat.

Naturally Ingles had to see what a rank novice would do — a young coati taken so early in life in the field that she never had known other coatis and hadn't seen one since. He offered her a tarantula and bingo! She pounced on it, and rolled it about in exactly the proper fashion. Satisfied at last that it was O.K., she ate it with relish. Nobody showed her what to do, just tribal know-how — a particular bit of inherited behavior that would stand a coati going into new territory in very good stead.

But what about the old tried and true method of tree descending which is also an inherited behavior. The approved way of going down a large tree in a tropical forest, it appears, is by running out on the end of a drooping branch and transferring to one lower down, using the long, tapering tail flung over the branch or pressed tightly against it as a safety brake. Or, transferring to an adjacent tree, go down its branches if they look better; but never, never go straight down the trunk of a big tree unless it absolutely can't be helped, for there the old tail brake can't function well.

Following tradition, Ingles' captive did fine in California oaks and cottonwoods, but the Jeffrey pines and red firs were a real problem. Each standing alone had no nearby neighbor. Going 60 feet up into one of these was easy, but once up there, the coati was in trouble. She could only climb down from limb to limb along the vertical bole, which she did slowly and with extreme caution, using her tail as best she could. Each time the next limb was reached, she explored it to the very end, seeking an easier way before risking the next few feet down the trunk which was either smooth and slippery or covered with treacherous scaly bark that might not support her weight. Such a descent might take more than a half hour and a lot of physical and nervous wear and tear. And, as Ingles pointed out, this pattern of inherited behavior that worked well in tropical forests could get the coati into difficulty in a Sierran coniferous forest, cramping its style and freedom of movement.

On the whole coatis seem a surprisingly hardy lot and able to stand quite a bit for a tropical animal. The one found in northern Oklahoma, for instance, had built herself a nest 25 feet up in a cottonwood and was getting along all right at 20°F., a far lower temperature than she could be expected to tolerate. Certainly various inherited behavior traits will help, used just as they are. Others may have to be adjusted to fit new circumstances. Those that can't be are bound to limit both the geographical and ecological spread of these animals.

In the meantime, the coatis keep expanding their range and keenly interested biologists are watching to see what happens. □

Staurolites or Fairy Crosses

by MARIAN TALMADGE
and IRIS GILMORE

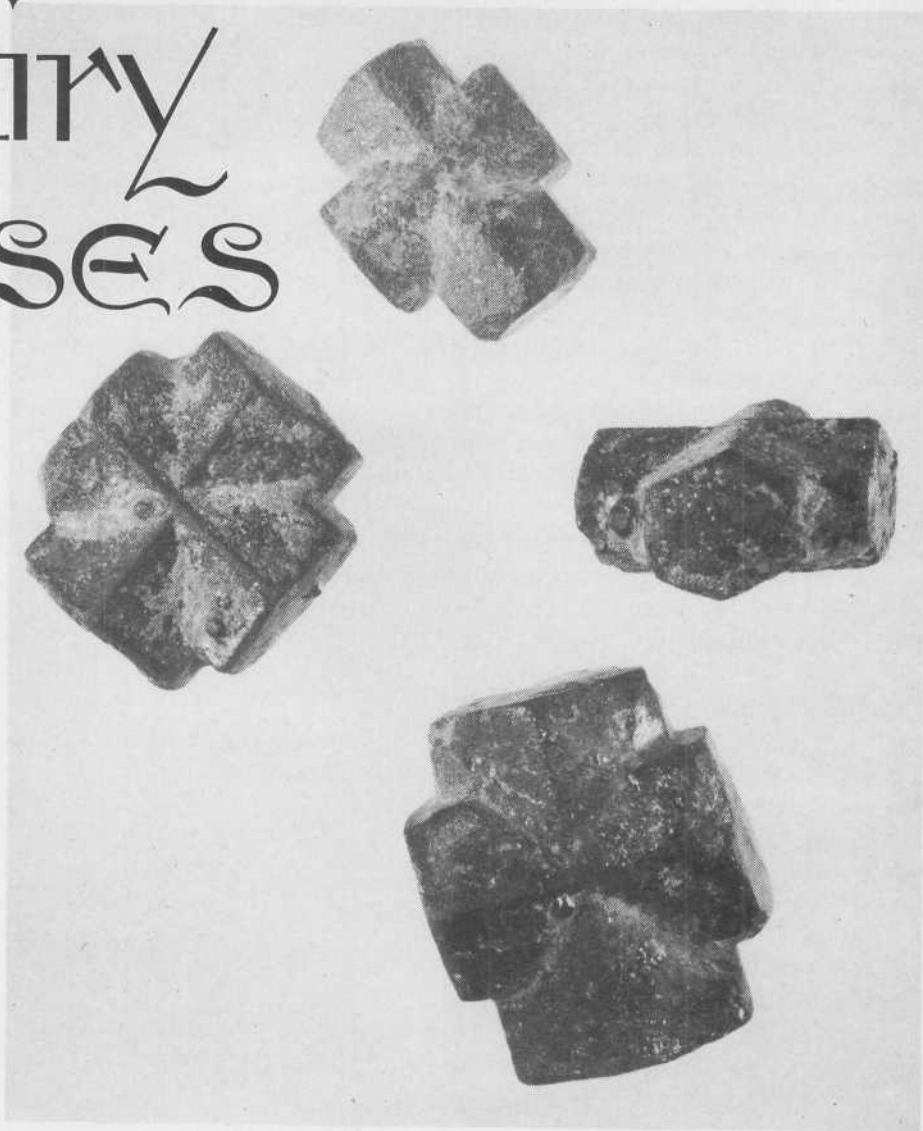


Photo taken by Marian Talmadge. It shows the staurolite crystals at about four times their normal size. The "bumps" or bright protuberances are garnets. If the cross is broken, more garnets are usually found inside. Garnets are also found free in the sands of the streams near Taos, New Mexico.

WHETHER YOU are an enthusiastic rockhound or a casual collector, with a little hiking and some luck you may find a bonanza of staurolite crystals near Taos, New Mexico.

These fascinating crystals or "crosses where the fairies danced" make a wonderful addition to a mineral or jewelry collection. Those found in the Taos country are a brown to black in color, and after removing the outer layer of rock, you will find garnets imbedded in them.

It is a silicate of iron and aluminum in prismatic crystal twinned to form a cross, and takes its name from the Greek word *Stauros*. Both minerals are found in the neighborhood of Pilar (20 miles south of Taos on US 64), and on US Hill (12 miles southeast of Taos on New Mexico 3). They are moderately heavy minerals and since the streams are small in that area and are not powerful enough to carry them very far, you can usually find the crystals in the channels and along the sandy banks. The rock around them is constantly being weathered out by water and erosion.

Staurolite and garnet are usually found where lots of mountain-making has taken place as in the Rocky Mountains. These upheavals brought about great pressures which formed the crystals. The garnets are crystals, always with the same number of faces, and make attractive jewelry.

Staurolites are worn as amulets or carried as good luck pieces by the natives. Two former presidents valued them—Woodrow Wilson always carried one, while Teddy Roosevelt wore one as a watch fob.

Local New Mexican legends call the rock crosses "tears of Christ," but in the Blue Ridge Mountains of Virginia, where they are also found, they are called "Fairy Crosses."

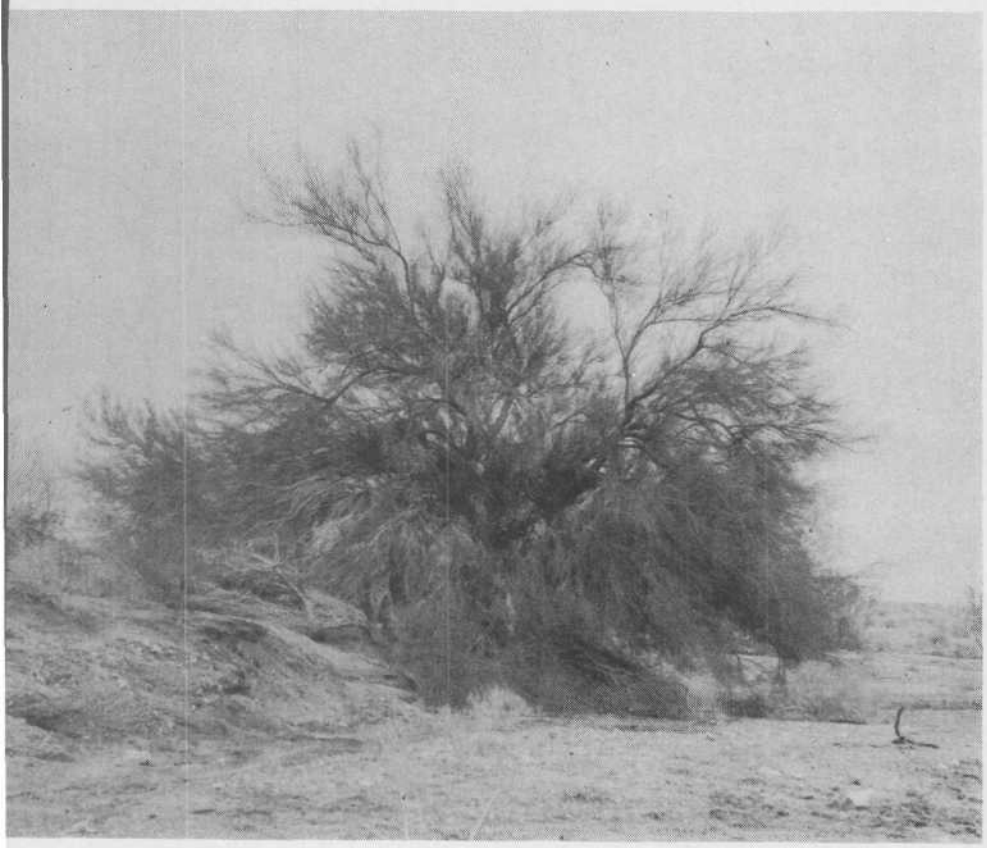
The southern legend relates that when Christ was crucified, the bluebirds brought the sad message to the fairies who wept in sympathy and their tears formed crosses as they touched the earth. The fairies then disappeared forever from this area, but their tears or crosses have remained to remind the finder of their grief.

Besides Taos, New Mexico, and the Blue Ridge Mountains of Virginia, staurolite and garnets are found in the Black Canyon and the Royal Gorge areas, both in southern Colorado near US 50. □

Desert Plant Life

©1975

by JIM CORNETT



NEWCOMERS to the desert are often surprised to find several species of trees growing throughout the Southwest. The uninitiated envisage little or no vegetation sprouting from the sandy desert soil and are amazed to learn that over 20 species of trees make their home here.

Most of these trees are of local distribution, but one is widespread and can be discovered in low wash areas throughout the Sonoran Desert of California and Arizona.

The border palo verde [*Cercidium floridum*] is the tree and the name "palo verde" is of Mexican origin meaning "green stick." This common name is very appropriate as all the limbs and much of the trunk of this tree are green due to the presence of chlorophyll in the tissues.

Leaves are needed to manufacture food in most trees but are an expensive commodity in desert areas as they give off a great deal of water to the air. The palo verde can produce the food it needs in its trunk and branches and thus need not grow leaves. (If water is abundant as a result of local rains or flash flooding the palo verde will put out a few leaves but is not dependent upon them for food manufacture.)

The border palo verde, as the largest object around in many areas, provides a focal point for animal activity. Jackrabbits often spend the hot hours of a summer day beneath the shade-giving branches. The little insect-eating verdin frequently constructs her enclosed nest in the thorny limbs of this 10-25 foot perennial. Many rodents such as the antelope ground squirrel collect the rock-hard seeds dropped under the tree during late spring and early summer.

During spring, the palo verde may turn completely yellow, the tree covered with delicate, five-petaled blossoms. Such an adorned plant is one of the most beautiful scenes in the Southwest.

A few months following bloom the long, several-seed pods will ripen, turning a light brown or reddish color. The large seeds inside can be ground into a meal. Whole seeds are very hard and cannot be cracked by human jaws, at least not mine as a sore jaw attests! □

TWO ROADS TO RICHES

Continued from Page 14

find, he jotted in his notebook his name for the gulch. It was, appropriately, Gold Canyon.

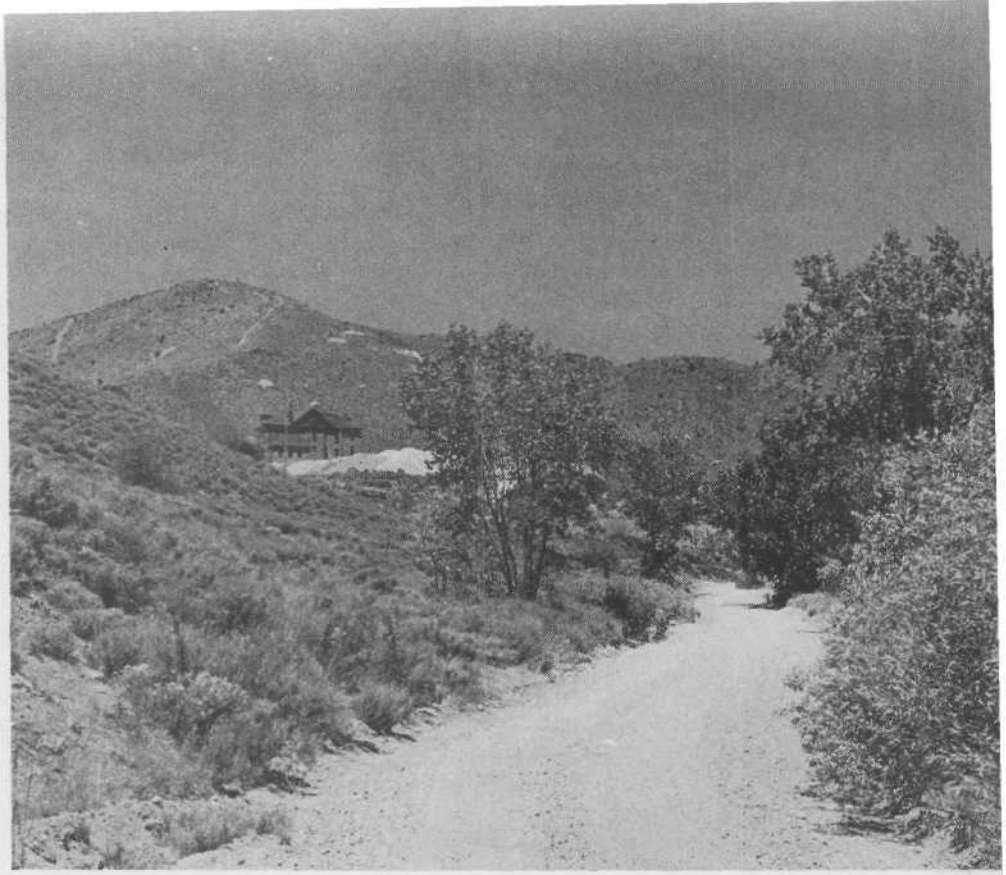
Still, the definite presence of gold in that ravine did not deter the party from their original goal, and they headed west once again for the promised wealth of that California El Dorado. Nevertheless, word of Orr's discovery was passed around, and soon men began drifting into the area to seach for the elusive metal.

For the next few years the prospectors continued working Gold Canyon, gradually moving higher as the lower areas became more depleted. The work was generally seasonal, due to the bitter cold winters and deep snow, and it caused the population to fluctuate. Eventually, a number of permanent residents established a small community called Johntown a few miles above the mouth of the canyon. This gathering of about a dozen shacks was considered the first "big mining town" in the area.

Yet, with the cold winters, the heavy blue dirt clossing the rockers, and not much more than five dollars a day in gold, many of the miners began drifting away. In 1857 the diggings began to fail and a number of prospectors moved over into Six Mile Canyon where gold had also been found. Then in 1858, a major discovery was made at the head of Six Mile Canyon, followed by another early in 1859 near the head of Gold Canyon. These two finds, plus the disclosure that the "blue stuff" was silver, created the big rush to Virginia City.

As the people streamed in to make their fortunes, mines, mills, and buildings began filling the canyon from Gold Hill at the top, through the village and toll house at Devil's Gate, to the town of Silver City, just below Devil's Gate. Where once a creek rushed down a cottonwood-lined ravine, the upper canyon became solid buildings from Gold Hill to Silver City.

During those early, frantic days, the relentless pursuit of gold was often interrupted by frightening or amusing incidents that were typical of the western towns. An event that included both occurred in the spring of 1860 when a breathless rider reined his horse to a stop in Virginia City and reported that the Paiute Indians had attacked Williams Station, several miles to the east, burned the buildings and killed four people. The outraged citizens formed a volunteer group and departed in pursuit of the Indians. The volunteers were soundly beaten near Pyramid Lake, however, and when the remnants straggled back to Virginia City the news of their defeat had created a panic throughout the mining area.



Road beginning to emerge from Six Mile Canyon into lower area of Virginia City.

The people of Silver City, certain the Indians were on the way with a huge war party, built a small stone fort on top of Devil's Gate, where they felt the Paiutes could be held off in their rush up the canyon. The "commander" of the fort reasoned that the group's rifles and pistols were not enough, so he proceeded to bore out a log and strap it with iron bands. It was mounted like a cannon, filled with scrap iron and chain, then pointed down the canyon — to await the Indians. The attack never materialized, however, and before long the "war" was over.

Later, out of curiosity, some of the men decided to fire the cannon. They carried it behind a hill, set a slow fuse, and fortunately took cover. When the smoke and noise cleared, bits of scrap iron and wood lay in all directions. Had they fired the cannon while at the fort, it would have killed everyone near it — except, of course, the Indians.

Six Mile Canyon never attained the prominence of Gold Canyon although it remained a part of the mining boom until the end. Gold was discovered in the canyon in 1857 and prospectors continued working the likely-looking spots. However, the rich yields of the Comstock mines discouraged the effort in the Six Mile area. After the rush was on, and construction filled the mountainside, Six Mile Canyon absorbed the overflow from Virginia City. The building boom included a number of mills as well as miner's homes, buildings for transients, and the one-half million dollar Park's Mansion. Butters cyanide plant, the largest in the nation at the time, was built at the foot of Sugarloaf Mountain, halfway down the canyon.

One of the mills, however, provided an income of an entirely different sort. A number of stagecoach robberies had been committed in the area, but after each holdup the thieves and the stolen gold disappeared. Finally, after committing a $50,000 train holdup, the robbers were caught. It seems they had leased a mill, as a blind, from which they could dispose of their stolen bullion bars. The entire gang lived, and pretended to work, in Six Mile Canyon.

Both canyons followed the up and down fortunes of Virginia City's big mines, and as the diggings slowed, people began to drift away. Many abandoned buildings were torn down, fell into ruin, or were destroyed by mindless vandalism. Today, though a number of people live in Gold Canyon, a ghost town aura pervades the Silver City and Gold Hill settlements.

The lower section of the present Gold Canyon road lies east of the actual canyon to a point just below Silver City where they converge. There the road splits, then joins again at the top of Gold Hill. The right fork is an easier grade for campers and trailers, while the left is a steeper climb that follows Gold Canyon through Silver City and Gold Hill. Although the road is numbered SR 17 from the US 50 turnoff to the highway south of Reno, the Gold Canyon portion is designated SR 80. Through this upper canyon old mine tailings, hoisting works, shops, and houses still dot the canyon along with the foundations and timbers from a number of original buildings. Here and there historical signs mark the location of some of the more important original building sites and ruins. When driving through the tree-lined canyon in Gold Hill, it is difficult to believe that 100 years ago there were almost 10,000 people living there. But then, that is the charm of the old towns.

The Six Mile Canyon turnoff is not a numbered route, but it is marked by a sign. The road proceeds northwest for a short distance before entering the ravine, then curves westward up through the canyon where it ends at Virginia City's main street.

The drive through Six Mile Canyon requires a view of the old days through the mind's eye, for there are no buildings left along the sage and juniper-speckled hills. Sugarloaf Mountain looms above the extensive rock foundations of the old Butters plant and an occasional rock wall or rotting timber verifies the existence of old buildings. The drive itself is quite pleasant, for the road follows the cottonwood and willow-filled creekbed and occasionally dips under the branches to provide shade from the hot Nevada sun. As the canyon opens to the mountain slopes, the road emerges into the lower section of town, then ends at C Street about a mile north of where the Gold Canyon road straightens out to form Virginia City's main street.

Like many other thoroughfares that were once the center of activity, the Gold Canyon and Six Mile Canyon roads are now primarily a means of going somewhere else. And like the old miners whose claims have given out, they must be content to spend their remaining days in the reflected glory of an era that has disappeared. □

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. However, we must receive the information at least three months prior to the event. Be certain to furnish complete details.

JUNE 10-12, Rocky Mountain Federation Show & Convention, Convention Hall of the Salt Palace, Salt Lake City, Utah. Hosts, Mineralogical Society of Utah, Wasatch Gem Society. Door prizes, dealers.

JUNE 21 & 22, Lassen Rock & Mineral Society's Third Annual Show, Lassen County Fairgrounds, Susanville, California. Dealer spaces. Camping and tailgating available. Chairman: Clyde Merton, 70 Foss St., Susanville, Calif. 96130.

JUNE 28-JULY 6, Prineville Rockhounds Pow Wow. Crook County Fairgrounds. For information: Prineville Rockhounds Pow Wow Assn., P. O. Box 671, Prineville, Oregon 97754.

JUNE 28 & 29, Mt. Jura Gem & Mineral Society's 11th Annual Rock Show and first time tailgating. Plumas County Fairgrounds, Quincy, California. Field trip Sunday, demonstrations, camping. Chairman: Sherman Anderson, P. O. Box 36, Cresent Mills, California 95934.

JUNE 28-JULY 5, All Rockhounds Pow Wow Club of America, Madras, Oregon. Fourth of July Pow Wow, Jefferson County Fairgrounds. Dealers, displays, field trips. For information: Wm. C. Walther, 3724 W. Soundview Dr., Tacoma, Washington 98466.

JULY 4-6, Annual Cactus and Succulent Show, sponsored by the Cactus & Succulent Society of America, Inc., Los Angeles State and County Arboretum, 301 North Baldwin Ave., Arcadia, Calif. Admission free. Contact: Mrs. Kathryn Sabo, 20287 Rustin Rd., Woodland Hills, Calif. 91364.

JULY 19 & 20, Culver City Rock and Mineral Club, Inc., 14th Annual Fiesta of Gems Show, Veterans Memorial Auditorium and Rotunda, Overland at Culver Blvd., Culver City, Calif. Dealer space filled. Chairman: Van Macuff, 3633 Beethoven, Los Angeles, Calif. 90066.

AUGUST & & 10, 22nd Annual Show Golden Gateway to Gems 1975, sponsored by the San Francisco Gem & Mineral Society, Showplace, Kansas and 8th Streets, San Francisco, Calif. Exhibits, demonstrations, lectures. Admission $1.00, children under 12 free when with adult.

SEPTEMBER 5-7, Wasatch Gem Societies 15th Annual Gem and Mineral Show, University of Utah Special Events Center, Salt Lake City, Utah. Chairman: David Lewis, 1955 North Redwood Road, Salt Lake City, Utah 84116.

SEPTEMBER 13 & 14, 16th Annual Jubilee of Jewels Show sponsored by the Carmel Valley Gem & Mineral Society, Exposition Hall, Monterey Fairgrounds, Monterey, Calif. Demonstrations, dealers, food. Donation. Chairman: P. O. Box 5847, Carmel, Calif. 93921.

SEPTEMBER 13 & 14, 9th Annual Harvester of Gems & Mineral Show, sponsored by the Sequoia Gem & Mineral Society, Redwood City Recreation Center, 1328 Roosevelt Ave., Redwood City, California. Dealers, Demonstrations, Food, Door Prizes. Dealer Space filled. Admission. Chairman: Preston Bingham, 1144 17th Ave., Redwood City, Calif. 94063.

SEPTEMBER 20 & 21, The Magic In Rocks Show sponsored by the El Monte Gem & Mineral Club, Inc., Masonic Temple, 4017 No. Tyler, El Monte, Calif. 91732. Dealer space filled. Chairman: Johnny Johnson, 11416 Mulhall St., El Monte, Calif. 91732.

SEPTEMBER 27 & 28, Harvest of Gems Show sponsored by the Centinela Valley Gem and Mineral Club, Hawthorne Memorial Center, El Segundo, Blvd., and Prairie Ave., Hawthorne, California.

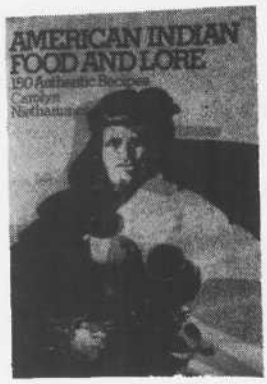
OCTOBER 11 & 12, Desert Gem-O-Rama sponsored by the Searles Lake Gem & Mineral Society, Trona Recreation Hall, Trona, Calif. Camping space for nominal fee. Admission free. Field trips to Searles Dry Lake. Write: Box 966, Trona, Calif. 93562.

INDIAN BOOKS OF INTEREST

TEMALPAKH by Lowell John Bean and Katherine Siva Saubel. Temalpakh means "from the earth," in Cahuilla, and covers the many uses of plants used for food, medicine, rituals and those used in the manufacturing of baskets, sandals, hunting tools; and plants used for dwellings. Makes for a better understanding of environmental and cultural relationships. Well illustrated, 225 pages, hardcover, $10.00; paperback, $6.50.

SPEAKING OF INDIANS by Bernice Johnston. An authority on the Indians of the Southwest, the author has presented a concise, well-written book on the customs, history, crafts, ceremonies and what the American Indian has contributed to the white man's civilization. A MUST for both students and travelers touring the Indian Country. Heavy paperback, 10x7 format, illustrated, 112 pages, $2.50.

HOPI KACHINA DOLLS [With a Key to Their Identification], by Harold S. Colton. Kachina dolls are neither toys nor idols, but aids to teaching religion and tradition. This is a definitive work on the subject, describing the meaning, the making and the principal features of 266 varieties of Kachina dolls. Line drawings of each variety, plus color and b/w photographs make it a complete guide to learn more of the richness of American Indian culture. Paperback, 150 pages, $3.45.



TURQUOIS by Joseph E. Pogue. [Memoirs of the National Academy of Sciences.] First printed in 1915, **Turquois** has in its third printing (1973) been updated in many ways. Among them are listed currently-operated Turquois mines, more color plates. The book is full of incredible results of research and an in-depth study of this fascinating mineral of superficial origin. Hardcover, 175 pages, beautifully illustrated, $15.00.

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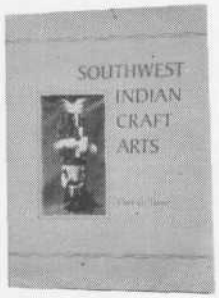
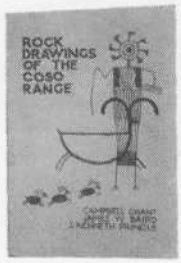


ROCK DRAWINGS OF THE COSO RANGE by Campbell Grant, James Baird and J. Kenneth Pringle. A Maturango Museum publication, this book tells of sites of rock art in the Coso Range which, at 4000 feet, merges with the flatlands of the northern Mojave Desert. Paperback, illustrated, detailed drawings, maps, 144 pages, $3.95.

NAVAJO RUGS, PAST, PRESENT AND FUTURE by Gilbert S. Maxwell. Concerns the history, legends and descriptions of Navajo rugs. Full color photos. Paperback, $3.00.



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Rambling on Rocks

by
GLENN and
MARTHA VARGAS

SCHEELITE:
New Number 5 in Hardness

APATITE, NUMBER 5 of the original Mohs scale, has been replaced by scheelite. This is an interesting mineral that is not commonly known. Scheelite is a common ore of tungsten, chemically, known as calcium tungstate, $CaWO_4$. To state it simply, it is calcium, tungsten, oxide; the W in the formula representing the tungsten.

The symbol W is derived from the Greek word *wolf,* meaning exactly that, a wolf; and a German word *ram* meaning soot or dirt — thus the combined word is wolfram. How a dirty wolf got into this is beyond us. From this unlikely combination of two languages, comes the name wolframite, for another tungsten mineral. The name scheelite is after a German mineralogist named Scheele.

The properties of scheelite are interesting. It is heavy, almost exactly six times as heavy as water, thus with a specific gravity of 5.9 to 6.1. The color ranges from colorless through yellow, to brown, to black. It forms crystals that are a double pryamid, with the dimensions between two opposite points either longer (the more usual) or shorter. Well-formed scheelite crystals can be either elongated double pyramids, or very squat ones.

The mineral closely resembles quartz, but the specific gravity of quartz, slightly over 2.5, and a different in hardness will easily separate them.

When subjected to ultra-violet light, the mineral will emit a bright bluish light, known as fluorescence. Such a distinct color is a great aid in prospecting for the mineral. The only special equipment that a scheelite prospector really needs is darkness, and a portable lamp that emits ultra-violet light.

The element tungsten has a number of important uses. The use of greatest importance to nearly everyone is in making the ordinary light bulb. The wire filament that glows, is made of pure tungsten metal. This is a very hard and brittle metal, but it does not easily volatilize at a high temperature. The working temperature of the filament in a light bulb is very high, and nearly all other metals would simply melt, or volatilize off as a gas. Actually, tungsten does volatilize very slowly. The black deposit inside of a well-used bulb is tungsten that left the filament as a vapor, and then deposited on the inner surface of the bulb.

A second important use for tungsten is in alloying steel to make it tough. During World War II, most of our foreign sources of scheelite and wolframite were cut off, and it was necessary to find domestic sources, or sources in neighboring countries. Much prospecting for tungsten took place at that time, and many new mines were located in the desert.

An interesting story was brought to light at this time. Just below the border, in Baja California, gold was found in the Sierra Juarez Mountains. A mine called the Real del Castillo, opened in 1870, which was an important producer. The mine was the original reason for the town of Ensenada, which became its

supply point. The mine was so rich that the town of Real del Castillo was the seat of Baja California's government from 1871 to 1882. It was then moved to Ensenada, and finally Real del Castillo lapsed to quietness.

During the gold mining, a white mineral, found with the gold, was a nuisance and was thrown away. It was not as heavy as gold (which has a specific gravity of about 17), but with the crude methods used, separation was a problem.

At the outbreak of World War II, someone remembered the white mineral that was a nuisance — it was scheelite. During the early stages of the war, this mine produced more than half of the tungsten that was available to American industry.

As better deposits were found in this country, Real del Castillo again lapsed back to quietness. Today, it is being work sporadically for gem materials, but this is far from the former two activities. Who knows, however, whether or not a Mexican gem prospector may open a gem pocket that may give Real del Castillo its third life?

Scheelite forms under a number of geologic conditions, but the most common is in pegmatite dikes. Often it is found with gem minerals. Real del Castillo is of this type. Other mines in northern Baja California are very similar.

We have visited many mines in this area and have been interested in the gem materials that the miners find to be a nuisance and throw away. One mine produced large crystals of axinite. Some, according to the miners, were over three inches across and clear enough to see through. We never saw any this large, but others, about two inches, were common.

Another of these mines contains a large amount of grossular garnet. Little, if any, of this garnet in the mine would make gems, but some of the crystals were nearly six inches across. Some of the smaller mines nearby produced a small amount of garnet clear enough to make faceted gems.

Virtually all of the scheelite mines of the area contained large amounts of an unusual mineral called clinozoisite. It is a close relative of epidote and the fine gem called tanzanite. Virtually all of the crystals of clinozoisite were badly flawed, but nearly all were well-formed. Some were good examples of twins.

Each of these mines were worked extensively for scheelite during the period of good prices. Now that the price is low, little, if any, scheelite mining is in progress. A few miners still live at the mines and are looking for gem materials.

The mineral collector has a definite interest in scheelite. Fine crystals are rare. However, most crystals are excellent. The mineral exhibits an adamantine luster, thus well-formed crystals are very brilliant and shiny. Many of the mines opened in the desert Southwest produced excellent specimens. Other localities throughout the world have produced fine crystals. A notable recent one is in Korea.

The gem cutter has an interest in scheelite also. The mineral has a refractive index of over 1.9, almost equal to zircon. It also exhibits a moderate double refraction and dispersion. The latter is the property of breaking light into the colors of the spectrum. Adding these two moderate properties to the high refractive index gives a good potential for a faceted gem. The low hardness, however, precludes any use of the gem for jewelry, and it is usually kept as a display gem only.

A number of mines in California have produced excellent colorless material. A mine in northern Sonora, Mexico, only a few miles below the border, has produced fine deep yellow to orange material that is excellent for faceted gems.

We are not certain, at the moment, if scheelite is a good choice for a hardness indicator. Only the more solid pieces exhibit a true 5 hardness, and these specimens are difficult to obtain. Good solid pieces are not nearly as common as good pieces of apatite. Time will tell us if the rarity of solid pieces will have any effect on the usability of this mineral as a hardness indicator. □

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Letters to the Editor

Letters requesting answers must include stamped self-addressed envelope

Sharp-eyed Reader . . .

While reading through your April 1975 edition, I came across an obvious error. Under the title of Desert Plant Life by Jim Cornett, is a photograph of a plant that is beyond a doubt the Prairie Sunflower *Helianthus petiolaris*, a common spring and summer wildflower on the sandy sections of the southwestern deserts.

This plant is easily recognized by the three following characteristics: 1. The petioled leaves, with the petioles being one-half as long as the leaves; 2. The smooth or entire margins of the leaves. 3. The *reddish or brownish disk flowers*. All of these characters are plainly shown in the photo.

The Desert Sunflower *Geraea canescens* is by far one of the most common spring wildflowers throughout the southwest deserts. It can easily be identified by the three following characteristics: 1. The sessile or short margined petiole of the leaves. 2. The dentate or broad-toothed leaves. 3. The *clear yellow disk* flowers. None of these characteristics appear in the photo.

Since the plant that was intended to be described in the article is such an important and commonly seen wildflower, I think that you should draw the attention of your readers to this error.

JAMES A. DAVIS,
Indio, California.

Editor's Note: Keen eye there, James! We inadvertently used the wrong photo. Both photos are used here for comparison.

Correct

Incorrect

Desert is Rare Exception . . .

A month or so ago, a friend of mine picked up several years of back issues at a local Goodwill Store. I began flipping through them and then became completely enchanted for several hours. All of the magazines had been printed in the late 60s and it has been my experience that publications, unfortunately, deteriorate as time goes on. I was delighted to discover when I chanced upon the February issue that your magazine is among the rare exceptions. I read the issue from cover to cover.

I have traveled across country and through Mexico a few times enjoying the exhilarating but yet serene desert landscapes. It's not often that I get a chance to escape from the city, so I'm looking forward to receiving *Desert* monthly to give me a small reprieve from the smog and masses of workday commuters. When I do next get to travel, I'll have gained a wealth of information and will be able to look for the unexpected wonders you've brought to my attention.

Thank you for a truly excellent publication.

GRACEANNE L. HARRIS,
Berkeley, California.

Congratulations . . .

Congratulations on your March issue. I particularly liked David Muench's unique cover photo and Al Pearce's article *For the Future*.

HARRY JAMES,
Banning, California.

Reminder . . .

I thought you might be interested in my attending the 50th Anniversary of the Graduating Class from Polytechnic High School, Riverside, California, last June. There were 175 attended out of a class of 225.

The four guests in the honor chairs were teachers who taught us 50 years before. Among them was Edmund Jaeger, who taught Geology at that time.

I have always enjoyed reading his articles in *Desert Magazine*, and it was a pleasure to see him enjoying good health.

LEON M. CAMPBELL,
Agoura, California.

A Fan from Alaska . . .

I once lived in Indio, California (for some 10 years) and knew Nina Shumway, author of *Your Desert and Mine*, and also worked with Jane Walker, who was once the Librarian in Indio and whose encouragement it was to get Nina to write her book.

I have now migrated to Alaska where I am Librarian. I feel people here would be interested in the Southwest desert, so recently subscribed to *Desert Magazine*. Though it is quite a contrast between here and there, it does give me a sense of "warmth" (when we have 20 and 30 below zero temperatures) to read your good magazine. Keep up the good work.

ERNEST J. WELLMAN,
Soldotna, Alaska.

Imagination Stirrer . . .

I have read the *Desert Magazine* for years and there is something about the desert, which the magazine portrays, that stirs my imagination.

The desert is vast and lonely and perhaps it is the nice clean air, or the being able to look for miles and see nobody.

The desert seems to cast a spell over me. I have not been able to see it as much as I like, but I am thankful that I had the pleasure of visiting it a few times.

I hope the *Desert Magazine* has many more years ahead of it.

GEORGE W. MEYER,
Costa Mesa, California.

Desert Primrose . . .

The Desert Primrose native to Southwestern deserts was fitting and proper for the front cover of *Desert Magazine*. How it can grow in sandy soils without much humus is beyond me. So delicate, so radiant, so fresh with a fragrant aroma that is most pleasing in the spring time. It certainly has its habitat and purpose as a desert flower.

ELMO MENETRE,
Truth or Consequences, N. M.

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