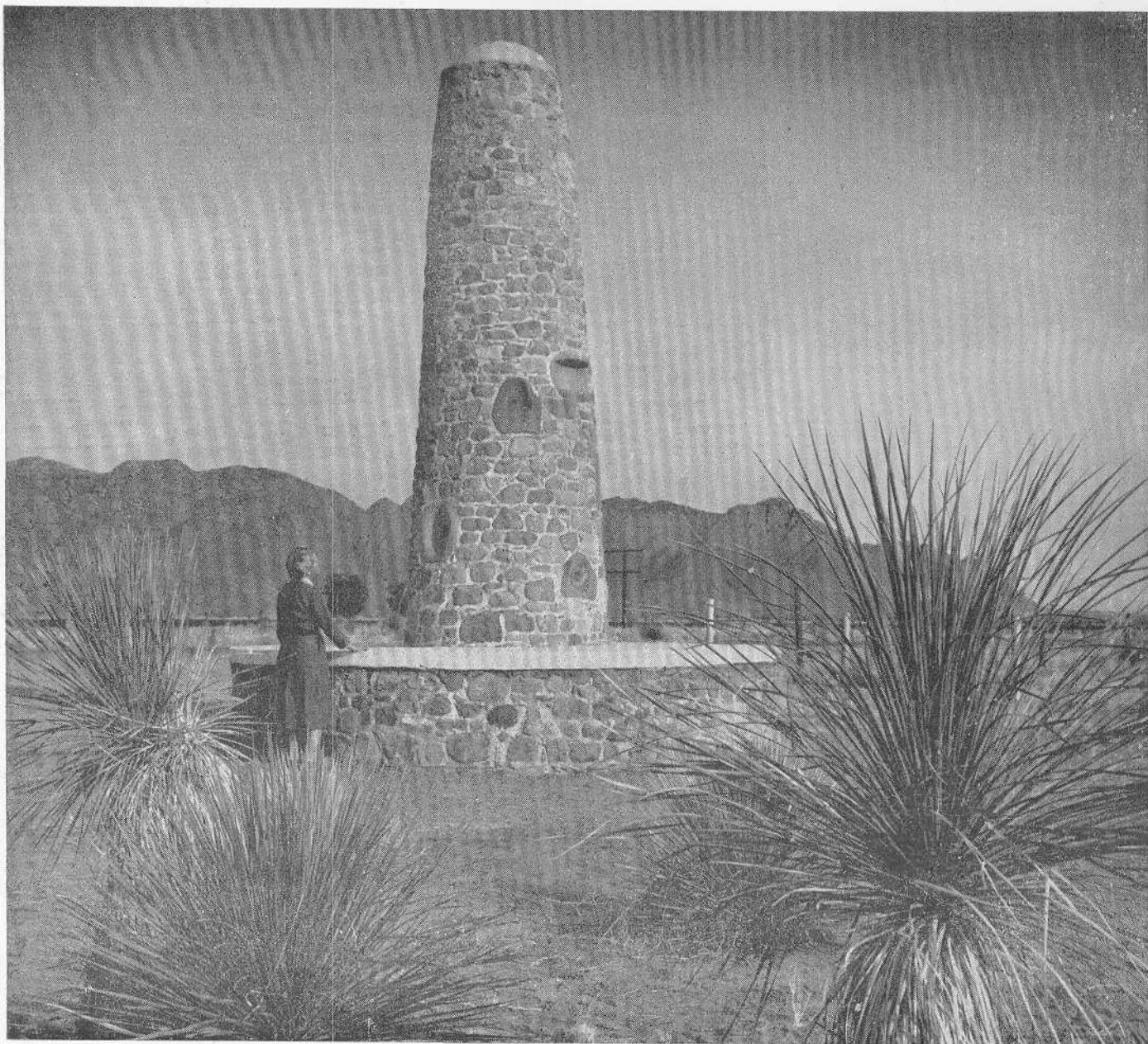


Desert

MAY, 1957 35 Cents





HISTORIC PANORAMAS III

The Geronimo Monument

By JOSEF and JOYCE MUENCH

This stone monument on U.S. Highway 80 in southeastern Arizona 10 miles from the New Mexico border, commemorates the end of all Indian warfare in the United States. A few miles east, in Skeleton Canyon, the Apache Geronimo surrendered to U.S. Army troops on September 5, 1880. He and his followers were sent to Fort Pickens, Florida, for two years before being allowed to join their families in Alabama. Geronimo himself was later moved to Fort Sill, Oklahoma, where he remained for the rest of his life.

Travelers passing the lonely pillar with its legend, can hardly be expected to comprehend the difference between the present peace of the region and what early settlers tell of life with the Apaches apt to appear from any clump of brush or hidden canyon mouth.

If it meant peace to the white man, the surrender spelled to the Indian the cancelling of a 400 year oath to keep his foes from the desert land with its rolling hills and valleys, its mountains and freedom.

Old stone metates are imbedded in the monument shaft.

DESERT CALENDAR

April 29-May 19—23rd Annual Junior Indian Art Show, Museum of Northern Arizona, Flagstaff.
 May 1—Annual Reunion and Picnic of the Buckeye and West Gila Valley Old Settlers Union, at Buckeye, Arizona.
 May 1 — Fiesta and Spring Corn Dance, San Felipe Pueblo, New Mexico.
 May 1-4—Las Damas Trek, Wickenburg, Arizona.
 May 3—Santa Cruz Corn Dance and Ceremonial Races, Taos, N. M.
 May 3-4 — Annual Regional Music Festival, Tucson.
 May 3-5—Cinco De Mayo Celebrations (Mexican Independence Day) at Nogales and Gilbert, Arizona, and other border towns.
 May 4-5—Saugus, California, Annual Rodeo.
 May 4-5—Desert Panorama Exhibits, China Lake, California.
 May 4-5, 11-12—30th presentation of the Ramona Pageant, Hemet, Calif.
 May 5 — Colorado River Regatta, Parker, Arizona.
 May 5—Blythe, California, Women's Riding Club Stampede and Rodeo.
 May 10—Golden Spike Ceremony, Promontory, Utah.
 May 10-11 — Eastern New Mexico University Rodeo, Portales.
 May 10-12 — Lone Pine, California, Stampede.
 May 11-12—Santa Barbara and Riverside Chapters of the Sierra Club joint trip to Joshua Tree National Monument, California. Camp at Hidden Valley.
 May 11-26—31st Annual Wildflower Show, Julian, California.
 May 12 — Desert Protective Council meets at Lolomi Lodge, San Jacinto Mtns.
 May 12—Palo Verde Festival, Tucson.
 May 12-13—Industrial Days, Henderson, Nevada.
 May 14-15 — San Ysidro Procession and Blessing of Fields, Taos, New Mexico.
 May 15-26—Spring Landscape Show, Tucson.
 May 17-19—23rd Annual Elks Hell-dorado and Rodeo, Las Vegas, Nevada.
 May 18-19—Grubstake Days, Yucca Valley, California.
 May 18-19—Tucson Festival Events: Children's Parade on 18th; Fiesta de la Placita on 19th.
 May 22-25 — Cotton Carnival, Cal-exico, California.
 May 22-26—Junior Chamber Circus, Lancaster, California.
 May 25-26—Fiesta de San Felipe de Neri, Albuquerque.
 May 26—Horse Show, Sonoita, Ariz.
 May 26—Pictograph Tour of White Oaks — Three Rivers area, from Alamogordo, New Mexico.
 May 27—Homecoming Day, Caliente, Nevada.
 May 27-June 21—Historic Map Exhibit, Museum of Northern Arizona, Flagstaff.
 May 29-31, June 1 — Elks Rodeo, Carlsbad, New Mexico.
 May 31—Spring Jamboree, Valley of the Sun Square Dance Festival, Phoenix.
 May 31, June 1-2—2nd Annual Kids Rodeo, Alamogordo, New Mexico.



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Pioneer Ranchers on the Yampa...

Life in the canyon country where the Green and Yampa rivers meet near the Utah-Colorado border still is fraught with pioneer inconveniences, but here Charlie and Evelyn Mantle have made their home. Their only access to the outside world is a jeep trail that took them 11 years to build. But the Mantles live their full rich lives in an incomparable canyon setting—and feel they are more fortunate than folks who have to live in the more crowded places in the world beyond their peaceful ranch.

By NELL MURBARGER

Photographs by the author

Map by Norton Allen

AFTER WANDERING for more than 40 miles through dry broken hills and over wind-swept ridges, the little desert road scrambled down the side of a rock-rimmed canyon to the green-and-golden cottonwoods on its floor. Straying on through a crooked pole gate, the sandy wheel tracks skirted an old fruit orchard and a thin crescent of meadow hemmed on its far edge by the brown waters of a sullen river; and in the yard of a small log house the trail drew up and stopped.

Even in this tall wide world of sky-raking cliffs and color, it was the little brown house that caught and held my attention. It was the first house I had seen since leaving Jensen, Utah, 50 miles earlier. I was curious to learn what sort of folks I would find in this far corner of Creation where Hell's Canyon spills into the Yampa. Hermits, one might suppose; yet, this wasn't my idea of a hermit's home. It was neat as a doll's house! Old-fashioned white roses and red poppies were blooming in the yard; bowers of

hop and grape vines tumbled over the log walls; and a dozen varieties of green vegetables grew in a well-tended garden.

A friendly black-and-white dog came wagging forth to meet me, and the kitchen door eased open to frame the slender figure of a woman. From the questioning look on her face, I guessed that the truck-jeep trail to the Mantle ranch doesn't often deliver there lone women strangers in old sedans; but after a brief moment of hesitation, Evelyn Mantle smiled warmly and extended a firm tanned hand—and, all of a sudden, I knew what sort of folks lived in the little log house at the end of the road!

I had learned of the Mantles from Randall Henderson, editor of *Desert Magazine*. While making a boat trip down the Yampa river, he and his party halted briefly at the Mantle ranch, and on his return he asked me to get a story of the Mantles when next I was in their part of the country.

"I'd like to know who they are," he said, "and where they came from,

and how long they've been on the river . . . and why."

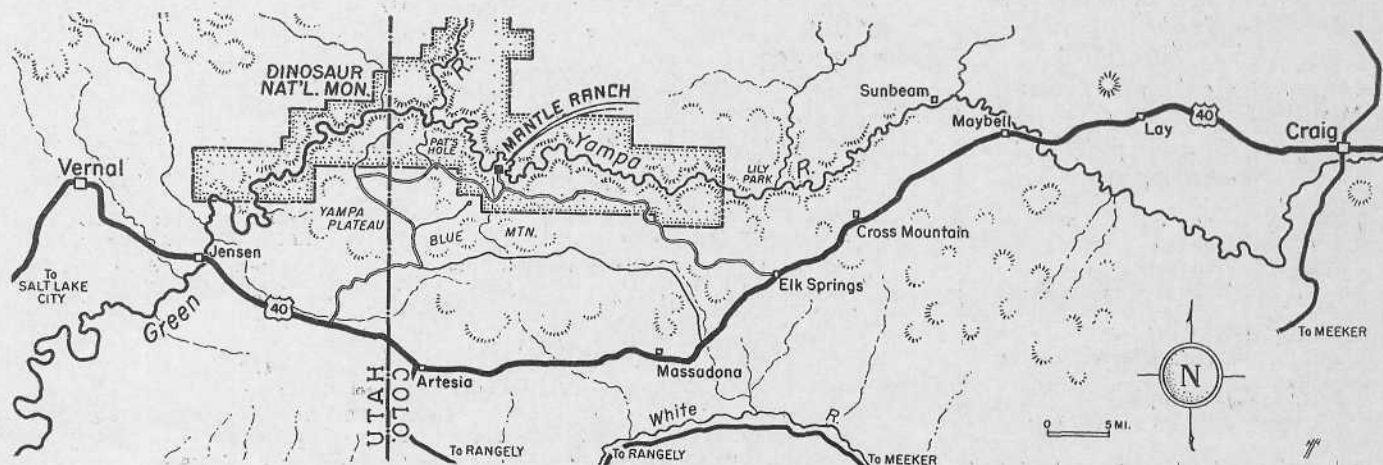
That was the reason I had driven to the Mantle ranch—but it wasn't the reason why I took three days to cover an assignment any good reporter could have filled in a few hours. I stayed three days because I liked the place—and the Mantles! The moment I stepped inside their home, it seemed to enfold me, like a charitable mother hen accepting a stray chick; and by supper time that first evening, I was a member of the family.

For Charlie and Evelyn Mantle, pioneering did not end with the ox-team and Conestoga wagon. In this high tumbled-upside-down merging place of Utah, Colorado and Wyoming, frontier conditions prevailed well into the present century, and even today, if judged by American standards, the few folks living in this remote land still are pioneering in the truest sense of that word.

Hearty plain-spoken Charlie Mantle sees nothing glamorous about being a pioneer, because he has never known any other life save that prescribed by the hard demanding world of the frontier. Born in the Yampa country, Charlie's earliest recollections are of riding after cattle in the notorious Brown's Hole—a region then so far removed from courts and organized law that it was still a haven for the fugitive renegades of three states.

One day, while he was working as a buckaroo, Charlie came upon a strip of bottom land a dozen miles west of Brown's Hole, in what was known as "the Pat's Hole country." He figured this land was just about what he wanted, and soon as he was financially able, he bought it from an old man who had claimed it under squatter's right. In 1919 Charlie began the laborious process of converting the raw acreage into a ranch. Seven years later he took another important step—one that he readily admits was the wisest in his life.

He married Evelyn.



The marriage was disapproved by both families. Life on a cattle ranch, 50 miles from the nearest town and accessible only by pack-animals, is scarcely the preferred setting for a 19-year-old bride from New York who hadn't set foot in the West until five years before, and who knew almost nothing of pioneering. But if love laughs at locksmiths, there's no reason why it can't chuckle at isolation, privation and hardship.

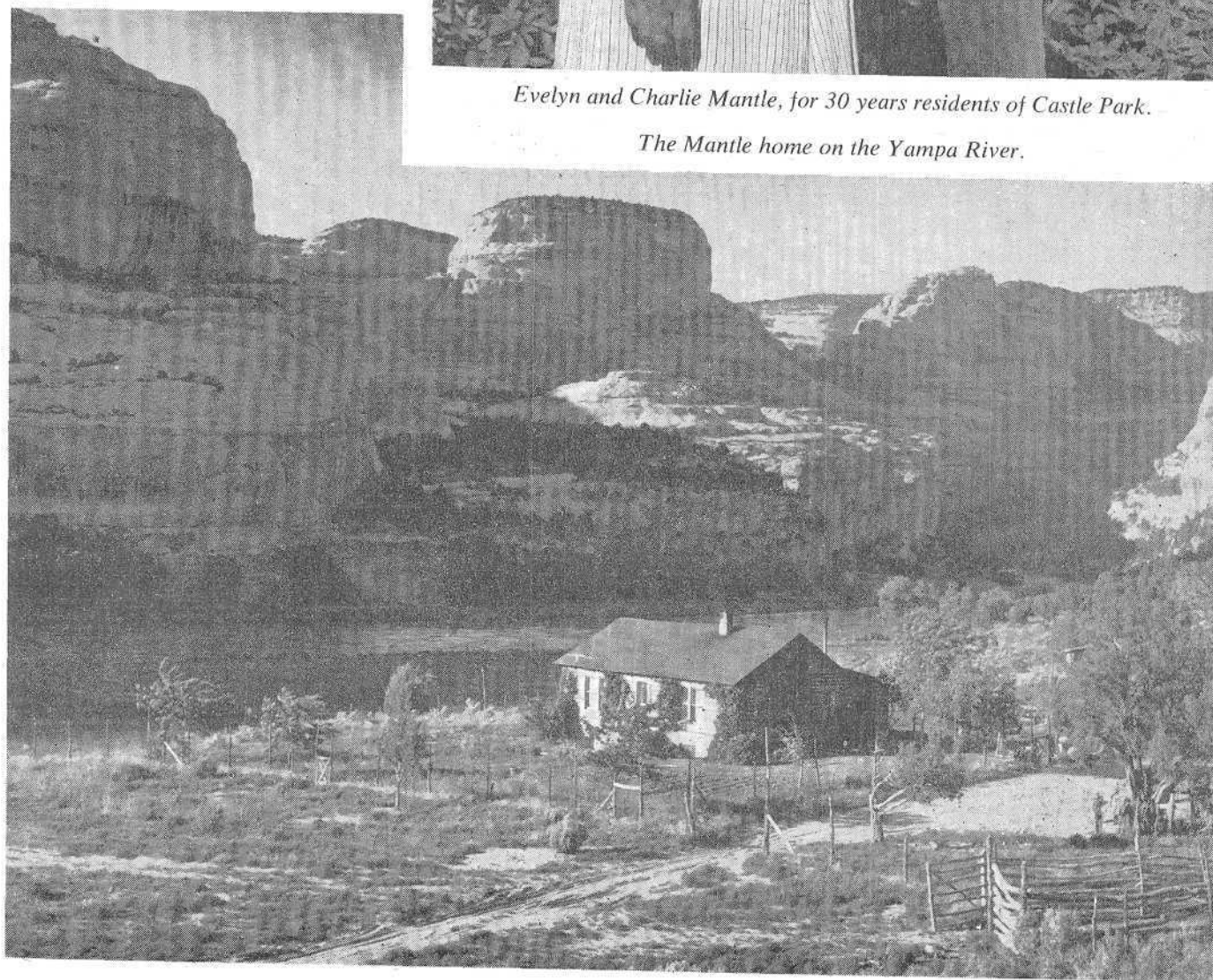
When Charlie Mantle and his teenage bride traveled home to his cabin on the Yampa in 1926, it was over a road distressingly bad all the way from Vernal, Utah. But, barring broken springs, broken axles, ripped-open tires, washouts, landslides and other developments, it could be negotiated to a point 11 miles from the Mantle ranch—and there it ended! Beyond lay the Land of the Pack-horse, without roads of any sort or description—not even rutted wheel tracks traversible by a team of mules and a wagon!

While the use of pack animals for a brief camping trip can be an enjoyable experience, such transportation as a steady diet is both laborious and



Evelyn and Charlie Mantle, for 30 years residents of Castle Park.

The Mantle home on the Yampa River.



time-consuming, and soon the Mantles realized that they would need a road into the ranch. Because such a road would afford little benefit to anyone but themselves, they couldn't expect the state or county to assist with its building; and since they were not in a position to hire help, the only solution was for Charlie and Evelyn to do the work themselves.

At first Evelyn did not think it would take too long to do the job—perhaps a few months, she guessed. Other time-demanding tasks, however, seemed always to crowd in—riding after cattle, branding calves, shoeing horses, repairing fences, building sheds, cutting wood for winter, taking care

of garden and orchard, canning fruit and vegetables. But whenever came a day or week when other work was not too pressing, Charlie and Evelyn worked on the road—blasting, moving rock, building retaining walls and making fills.

Time passed. Winters merged into summers. A succession of Mantle babies came to be laid on their blankets to sleep in the shade of sagebrush while Charlie and Evelyn toiled at their self-assigned task. The "few months' work" stretched into an incredible number of months—and before the Mantle ranch road was in condition for the first wheeled vehicle to roll over it, 11 years had passed!

Throughout that entire period, from 1926 to 1937, the Mantles had been completely dependent on pack horses for every pound of goods brought in from the outside—food, farm machinery, seed, medicine, kerosene, mail—everything.

"Our lives were completely geared to horses, 24 hours a day, and in all those 11 years I can't remember riding a horse when I wasn't carrying a baby, or riding one or two babies on the saddle in front of me!" laughed Evelyn. "You don't do much trotting or galloping when you're riding double, and even today, when Charlie brings home a new saddle animal, the first thing I ask is 'Can it walk?'"

When I asked Evelyn Mantle how she got to a doctor when her babies were born, she looked at Charlie and they both laughed.

"Doctor?" remarked Charlie dryly. "What's a doctor?"

"About a month ahead of time, Charlie would begin urging me to go to town so my baby could be born at the hospital, but there was always so much to be done at the ranch I'd postpone the trip from day to day. Finally, when I knew I didn't dare wait any longer, I'd start for Vernal—on horseback. For some reason," Evelyn grinned, "the babies always arrived before I did."

The Mantles' four boys and a girl—all healthy, handsome youngsters—received their elementary education in a one-room log schoolhouse a pebble's toss from the one-room log cabin where the Mantles lived during their first 15 years on the ranch. Prior to World War II, the school was supplied each term with a teacher sent in from outside, but with the war-bred teacher shortage, isolated districts such as this were left unstaffed. Legally, Evelyn was not qualified to teach in Colorado, but in view of the national emergency she was permitted to conduct classes for their three youngest children—the older two, by that time, being away at high school. After completing their first eight grades in the little log school house, all of the Mantle children attended Wasatch Academy, a Presbyterian Mission boarding school at Mount Pleasant, Utah, and from there went on to college. The youngest Mantle boy qualified for college entry at the age of 16.

Although the isolation of the Mantle ranch was improved by completion of their access road, it is traversible only in summer months—the 8000-foot plateau between the Yampa and U.S. Highway 40 being buried deeply under snow generally from December to May. Consequently the Mantles have no regular means of receiving or dispatching mail during this five-month

Colorful May Wildflower Displays Predicted for High Desert Areas

Focus on the 1957 wildflower season shifts to the high desert areas in May as *Desert Magazine* correspondents make their final report on what has been a better-than-average year for blossoms.

Lucile Weight says the Yucca Valley, Joshua Tree and Twentynine Palms areas probably will see many of the native shrubs such as cassia and indigo-bush, blooming in late April and May. The Joshua trees, in their greatest blooming display in years, and Mojave yuccas should still be showy during the month. Smoke tree and chilopsis will bloom later, probably in June. East of Twentynine Palms, desert lilies may show bloom by late April along with other annuals.

Bruce W. Black, park naturalist at Joshua Tree National Monument, predicts a good May display, although dry winds in early April may have taken their toll of the flowers. Marigold, desert plume, desert dandelion and other flowers will be conspicuous in the Pinto Basin.

From Daggett, California, Mary Beal reports that some areas of the Central Mojave Desert already are showing a profusion of bloom—the Lockhart Ranch drive north of Highway 466 (desert dandelion, marigold, gold-field, coreopsis, evening primrose, blue and purple lupines, gilia and verbenas); the Black Rock Canyon area; and Bear Valley road. She believes some areas along highways 66 and 91 will come into bloom late in April.

In the Fairmont district of the Antelope Valley, Jane S. Pinheiro says millions of golden poppy plants are showing. Good displays also are expected along the Johnson Hill and Willow Springs roads west of Lancaster. Many larkspur and mariposa are up in the

Joshua forests and hillside slopes of the valley.

Most of the wildflower blossoms on the Colorado desert have passed their peak. Dalton Merkel, district naturalist at Borrego State Park, does not believe many blossoms will be left by May, although indigo-bush, catalpa and agave may be flowering then.

It is doubtful that the Coachella Valley's blossoms will last into May. Severe sandstorms in early April damaged many of the flowers then blooming.

M. B. Ingham, Jr., naturalist at Death Valley reports a poor wildflower display for the monument. What flowers there will be during May will be found above 1500 feet.

From Lake Mead National Recreation Area, Naturalist Philip Welles also has a discouraging report. Creosote, encelia, mallow and a few other flowers still were in bloom in early April.

Encouraging news comes from the Organ Pipe Cactus National Monument near Ajo, Arizona. Chief Ranger John T. Mullady says generous rains have brought up patches of small annuals throughout the area which were expected to come into bloom in mid-April. He predicts at least a moderate display, with good chances for an excellent one. James N. Clancy of Casa Grande National Monument is expecting a good showing of wildflowers in the Coolidge, Arizona, area.

From Tucson, Robert J. Heying, acting superintendent of Saguaro National Monument, says the desert there is in good condition with some scattered areas having fine stands of poppies, bladder-pod, lupine, mallow, brittle bush and many other annuals.

period of winter isolation, and any commodities not procured before the passes close are done without until the following summer. The actual danger involved by such isolation, however, has been greatly alleviated by the recent construction of an airstrip on the rim of the canyon, and by installation of a two-way radio. In case of a serious emergency, it now will be possible for them to radio for help and a plane dispatched from the nearest point available.

"Sometimes, during the winter, one of our flyer friends picks up our mail at the postoffice, flies out here, and drops it to us by parachute," explained Charlie.

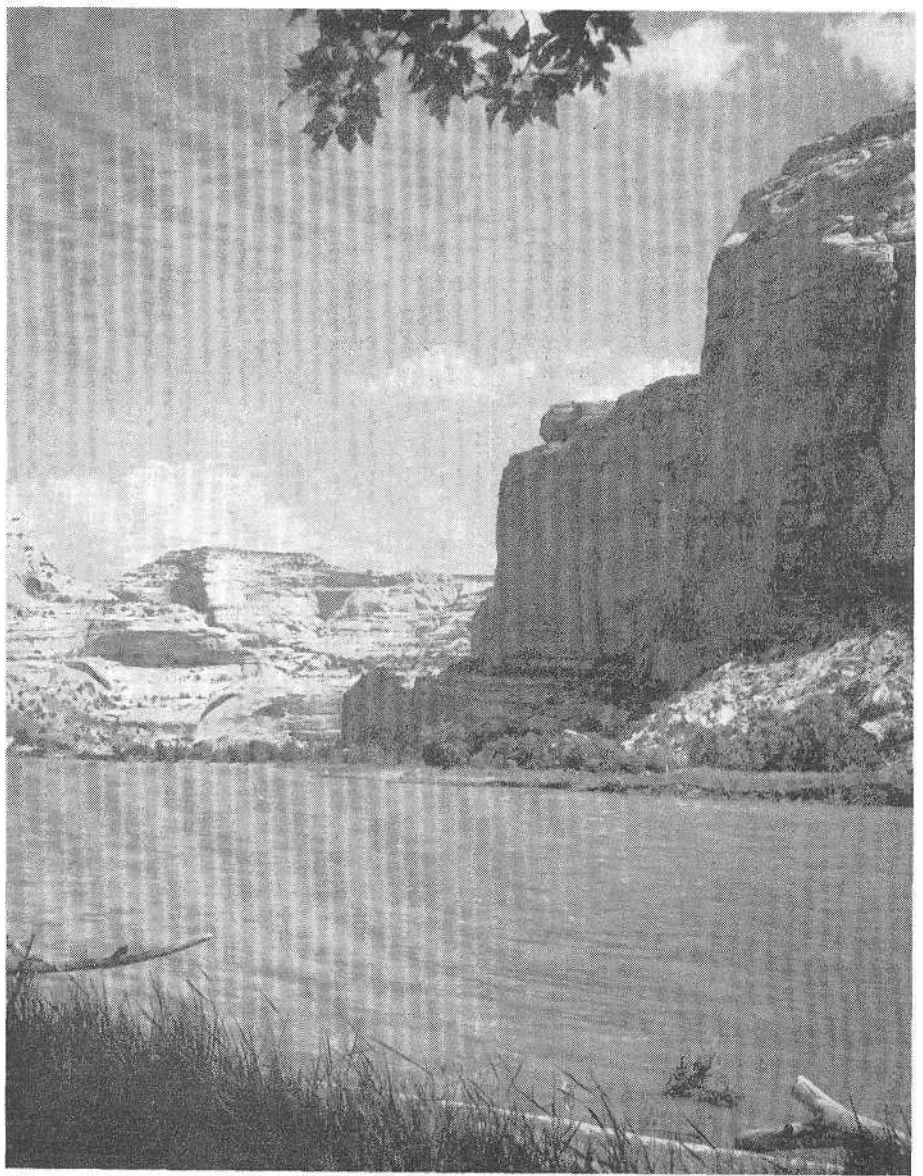
When I asked what they would have done during those years when they were so completely isolated, if one of them had been taken seriously ill or had been severely injured, Evelyn Mantle considered my question thoughtfully — almost as if it were the first time the matter had occurred to her.

"I'm not quite certain," she said at last, "—but I'm sure we would have done the best we knew how!"

The Mantles do most of their trading at Craig, Colorado, 100 miles to the east, with a quarter of that distance over the sort of road one might encounter in a bad dream. Their nearest postoffice is at Artesia, Colorado, 50 miles away. In view of these circumstances, the Mantle ranch is still not plagued by modern civilization, nor overrun by tourists. Except for an occasional jeep-borne prospector or archeologist, about the only strangers who come to the ranch are river runners.

Each year, as long as water in the Yampa is high enough to navigate, dozens of outfits run the river from Lily Park to Echo Park or Split Mountain; and since the Mantles have the only ranch on the river for a distance of 70 miles, many of the river parties break their journey at this point. To accommodate these adventurers, the Mantles have equipped an attractive free campground in a grove of cottonwoods with tables, stoves, toilets and water.

"All sorts of folks make the run," said Charlie. "Most of them are good sportsmen, but now and then a bunch will leave trash scattered over the campground, and sometimes a party will land and head out across our field, 50 or 60 abreast. You can imagine what that does to our alfalfa crop! The best ones we get are members of the Sierra Club. We never have any trouble with them—they don't leave any trash behind, and never destroy anything."



Yampa Canyon at Castle Park, site of the Mantle Ranch.

A knock at the kitchen door interrupted our conversation.

It was one of the wettest men I have ever seen! He and eight other officials of the Colorado State Fish and Game department were surveying wildlife along the river when they were bucked out of their rubber life rafts by the turbulent water at Little Joe Rapids, about a dozen miles upriver from the Mantle place. All were badly chilled by their dunking in the icy river, and one man's leg had been severely cut by the boat's propellor.

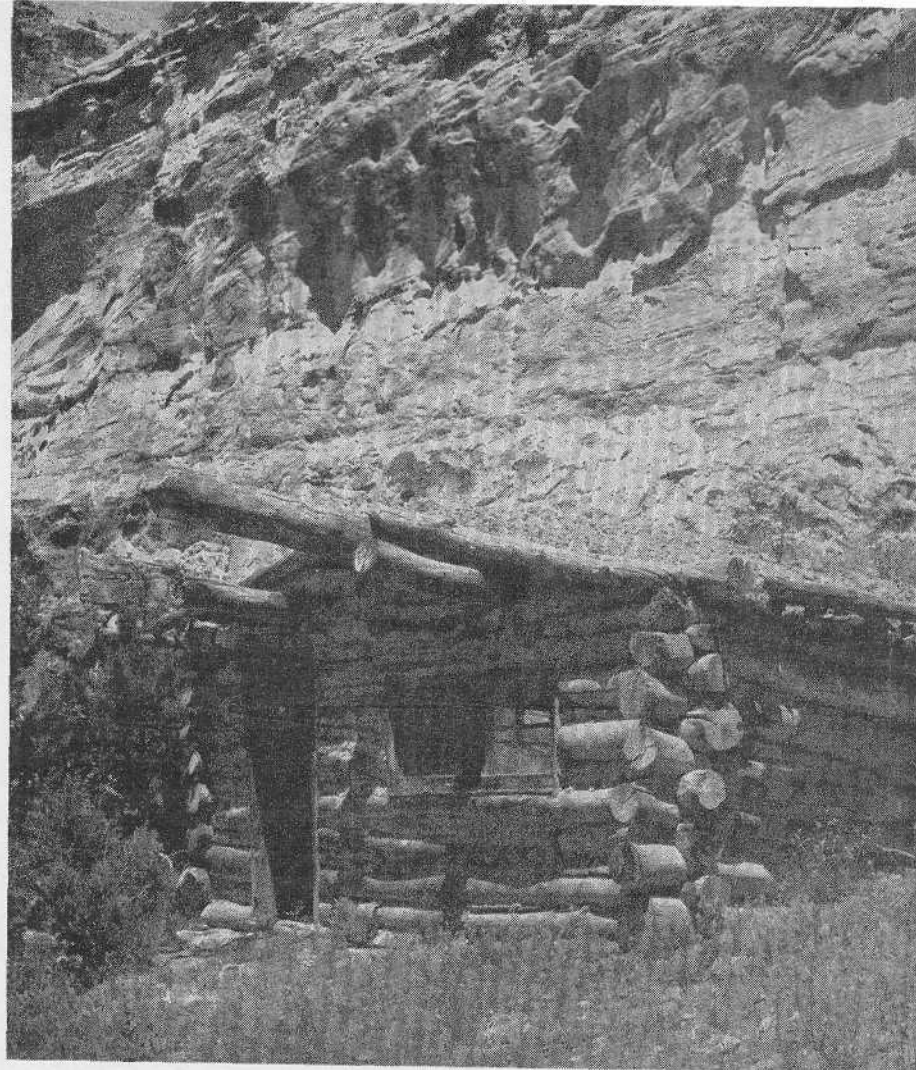
Hastening to the river landing in the ranch truck, Charlie picked up the injured man and the remaining members of the party, and minutes later the entire dripping group swarmed into the Mantles' warm kitchen.

Nearly four hours had elapsed since the mishap and the men were chilled to the bone. Evelyn hurried to divide among them a pot of hot coffee that

had been perking on the back of the stove, and put two more pots on to brew, after which she turned her attention to the injured man. He was suffering from shock and weak from loss of blood—and since a plane could not land before daylight Gil Hunter, leader of the party, thought it advisable to rush him to a hospital at once. One of their vehicles, Hunter said, was at Echo Park, where they had expected to leave the river, and if Charlie would take them to that point — about 13 miles—they would transport the injured man to the hospital at Rangely.

Without waiting to eat his supper, Charlie Mantle helped to lift the victim into the ranch pick-up, and he and two other members of the river party headed out through the night to Echo Park.

I had learned a little of what it means to live in a house by the side of the Yampa, "and be a friend to man."



One-room log schoolhouse where the five Mantle children received their educations through the first eight grades.

Identity of the first white man to run the Yampa river is not fully established but it seems logical to suppose that he was one of the early beaver trappers — a French-Canadian fur trader, Baptiste Brown, having settled on the Yampa in 1830 in the area later known as Brown's Hole, or Brown's Park. The first permanent white settler in the Pat's Hole-Castle Park area, site of the Mantle ranch, appears to have been Pat Lynch, who established himself there in the 1870s or 1880s.

Pat was an enigma—perhaps even a fugitive. According to what Charlie remembers of him, and the stories told by other old timers, Pat had been born in Ireland. He had served a hitch in the British Navy, and another in the British Army, during or after which, according to rumor, he had killed someone. Pat fled to the United States and enlisted in the army under the name of James Cooper. After fighting in the Civil War he emigrated to the Yampa, "to see the country Major Powell wrote about." As Powell's two trips to the nearby Green River were

in 1869 and 1871, it is presumed that Pat located on the Yampa soon after that time.

A typical hermit, Pat raised horses for a living and owned several cabins along the river which he occupied at his convenience. At various times he also lived in several different caves. One day, when Evelyn Mantle was exploring one of Pat's former cave dwellings, a gust of wind circled through the place and brought out from under a ledge a collection of dry leaves and debris. In the assortment, Evelyn saw a sheet of folded foolscap, brittle with age and warped like a potato chip. Opening it carefully, she found these words:

*To all whom this may Consarn
that I, Pat Lynch, do lay claim to
this Botom for my Home and Sup-
port. Wrote this 8th month of 1886.
P. Lynch.*

*If in these caverns you shelter take
Plais do to them no harm.
Lave everything you find around
Hanging up, or on the ground.*

As Pat grew older, he developed certain marked aberrations—one being an inability to decide whether his true name was Pat Lynch or James Cooper. The question seemed to worry him a great deal. He also developed a passion for drawing, painting and chiseling pictures on the canyon walls and within his caves—his subjects invariably being full-rigged sailing ships. According to Evelyn, "Pat's ships" still may be found throughout the area and are executed remarkably well, with all masts and rigging properly shown.

Pat lived in the canyon until he was nearly 100 years of age. During his last days he was cared for by a Good Samaritan at Maybell, Colorado, and upon his death, in February, 1917, burial was made at Lily Park near the head of the Yampa.

Toward the end of my visit with the Mantles, I asked them why they remained out in this isolated place. Charlie seemed at a loss for an answer. He mumbled something about it being a good place to raise cattle.

"The winters are mild," he went on, hesitantly. "We don't have much snow here on the river—sometimes the mercury falls to 10 or 11 below zero, but not too often—the summers aren't too terribly hot — not much above 100 degrees . . ."

He was struggling to think of one valid reason for remaining on the Yampa, 100 miles from town, and 50 miles from a postoffice.

"It's a good place to raise fruit," he continued. "In all the 30 years we've been here, we've never had to spray our trees for insects or disease."

"Why don't you just say, Charlie, that this is our home and that we've got everything here we want!" broke in Evelyn. "The soil is rich. We raise every sort of fruit that will mature in this latitude—cherries, pears, apples, crabapples, apricots, peaches, plums, grapes. We have a big garden, too, and we seldom go into a winter with less than 500 quarts of home-canned fruits and vegetables in our basement! We raise chickens for meat and eggs; we have a couple of jersey cows to supply us with milk and butter; we have our own cattle for beef, and there are fish in the river and deer in the canyons. We have all the pure water we can use; the air is clear and clean, and we don't have to worry about freeways and traffic, and smog and fog, and getting in our neighbors' hair, and having them get in ours—"

"Wait a minute!" I broke in, holding up my hand to stop the woman's eager flow of words. "That's enough—you've made out your case!"



The pampas hedge supports a crown of pyramidal plumes of silky white flowering of incredible beauty. Photo taken at the E. W. Adamson residence, Douglas, Arizona, by Marty-Dess.

Decorative Desert Hedges...

If you want a touch of distinctive beauty for your home, choose a hedge that compliments the desert setting. Most of the plants described in this story and countless others available to gardeners give both protection and privacy to your yard in addition to a dramatic and colorful impression that is typically Southwestern.

By JESSIE CALLAN KENNEDY

HEDGES IN THE desert towns of the Southwest are friendly but protective barriers.

Here more than anywhere else, hedges combine strict utility with the characteristically dramatic ornamenta-

tion of the desert. Even the windbreaks are decorative, for most of the desert hedge-plants bear either vivid fruit and foliage, or they flaunt brilliant bracts, blossoms or unusual flower forms of plumes, tufts, streamers or tassels.

I live in Douglas in southeastern Arizona where the year-round hedges delight the eye with life and color. In spring the spiny ocotillo blooms; a little later the bird-of-paradise covers itself in a glory of blossoms. All summer long oleanders put forth starry flowers. By fall the pampas is lifting high its creamy silken plumage. In winter the pyracantha, with its red berries, reminds visitors from the East of Christmas "back home."

When I bought my old adobe house, its desert garden was encircled by a

hedge of bird-of-paradise, aflame with red and yellow flowers. It was May.

This hedge needed no care, and after the summer rains the exquisite gold cups again opened to spill out their red filaments. It acted as an effective barrier against dogs and straying burros and even the winds could only deposit their cargoes of debris along its outer side.

In the fall, after the bushes stopped flowering, their fern-like leaves dropped off and I discovered that the tough and gnarled billious-yellow branches were literally holding up a rickety fence. Summer foliage had hidden the broken wire and rotting wooden posts.

When I replaced the fence with an adobe wall, I had to uproot most of the hedgerow. "That is the end of my bird-of-paradise," I said. But the following spring a line of young shrubs appeared and today I have an inside hedge. Every spring it spreads shoots of tender green leaves and masses of exotic flowers against the white wall.

Originally from South America this desert bird-of-paradise is not to be confused with the African *Strelitzia* of the same popular name.

Its four-inch pods contain seeds as large and dark as those of the watermelon. When the pods split and curl, they explode with such force that the released seeds bury themselves in the ground, where they lie dormant waiting for the warm April nights. The plant requires little water.

Among the many shrubs not native to the Southwest but considered as "belonging," is the oleander. This handsome plant of the East Indies found our desert heat to its liking many years ago.

It grows only under cultivation because it must have water. The oleander also is one of the best double-purpose hedges. It not only is protectively thick and spreading, but reaches a height of from 15 to 20 feet, more than adequate for privacy. Large clusters of fragrant white, red or pink blossoms may appear any time of the year. However, the principal flowering season extends from early spring well through the summer. The glossy evergreen leaves make it an attractive hedge at all times.

If enough moisture is present, this shrub is easily rooted from cuttings, and grows rapidly. Notwithstanding its many good qualities, the oleander has one drawback. It is poisonous and children should be warned not to nibble on its leaves.

To many people a hedge is merely a neat neutral background for a gay gar-

den. Indeed, newcomers to the desert often yearn for the close-cropped hedges of the East and some garden lovers have tried various importations such as the box, yew, arbor vitae and privet.

For those who insist upon a formal garden, the horticulturists have developed several evergreen hedge-type plants. They highly recommend for the Southwest, particularly southern Arizona, the euonymous. No matter what the weather vagaries, this plant will stay green all year with watering. It lends itself to clipping and shaping. The satin-shiny leaves grow out from every limb to the very bottom of the bush.

However, most of us eventually have turned back with relief to the tried and tested desert favorites.

These strikingly representative desert plants capture the imagination and hold the interest of the winter visitors. When a friend built a home in a new subdivision, he placed a living fence of ocotillo around his garden. This lowly corral-type enclosure at first shocked his neighbors who were planting and nurturing imported hedges, but soon they appreciated the pleasing sense of fitness it gave to his western home.

The ocotillo, when used as a hedge-fence, will stand for many years without upkeep. Planted in a row and held in position by strands of barbed wire, the wands sprout green leaves after the rainy seasons and their tips burst into brilliant red tassels. It takes skill and patience to successfully handle the long awkward thorny stems when building these living fences. The southwest states prohibit the cutting or removal of ocotillo and cactus from any but privately owned lands.

To strangers the ocotillo might appear to belong to the cactus family, but despite this likeness, paradoxically it is more closely related to both the violet and the tamarix.

Pampas grass, eye-catching during the fall and early winter, also lends its unusual qualities to hedge planting. Growing in thick tussocks, its basal leaves are tough and tall, and thick enough to give both privacy and protection.

The heavy grass sends up stalks six to 12 feet high which support crowns of pyramidal plumes of silky white down-like flowering of incredible beauty. The plumes measure from two to three feet in height. Pampas reaches its spectacular full bloom in September. Then, depending upon how much and how long the fall winds blow, the feathery panicles, turning from white

to light cream and then tan, remain on the stalks for months.

Pampas gets its common name from the vast, treeless plains of Argentina and southern Brazil where it grows in thick rolling seas of silver. It thrives happily under cultivation in our sandy soil.

Of the winter hedges the pyracantha is the most admired. An Eurasian native, it has traveled across the world to find a new home in the Southwest. Its thorny twigs effectively barricade any area to be enclosed.

The hardy pyracantha grows luxuriantly in the high desert country where the nights are cool. The lower the temperatures, the more brilliantly colored are its berries. The heavy showy clusters of red or orange fruit attract the eye and warm the heart all winter long. The short-stalked leaves remain the year-round and small white flowers appear during April and May.

Hedges of pyracantha ask for no special care and may even be neglected, as long as they have full sun.

Commonly known as the fire thorn, the Greek-named pyracanthas are variable in form and color. Those which grow upright to a height of 15 feet with clusters of red berries all along the branches, are particularly adaptable when a high hedge is required. Some, growing generally prostrate and reaching not more than six feet with orange to coral fruit, are among the finest of ornamental hedges for town use.

Horticultural varieties of unknown parentage have more recently been developed from a careful selection of seedlings by the growers. Fifteen of these have been named. Most can be used successfully as espaliers against a wall, as well as hedges. Among the best sellers is the patented Rosedale, a naturally upright shrub.

Pyracantha has one additional advantage over all other desert hedges: it provides the traditional Christmas color scheme and offers winter-long indoor decorations for the home. In fact, cutting of the pendulous berry-covered branches for such use is all the pruning this plant needs to retain its arching habit and to keep it from becoming top-heavy.

Fence-like or thick, tall or stunted, thorny or smooth, cultivated or weedy, flowering or evergreen, these six varieties are only a very few of the many hedges which thrive in the Southwest. A choice may be made from an endless selection as wide as the Desert Southwest itself.

Plants That Thrive In Saline Soils



Sarcobatus

By EDMUND C. JAEGER, D.Sc.
Curator of Plants
Riverside Municipal Museum

ONE OF THE characteristics of most desert areas is the presence of mountain-enclosed basins which have no drainage outlet to the sea. In the centers of these basins are dry lakes into which water, running during storms from the surrounding hills and mountains, accumulates.

Under the hot sun and frequent winds, the water evaporates leaving a residue of salts of several kinds including table salt and salts of potassium, magnesium and potassium as well as sulphates. These form hard surface incrustations which gleam white in the desert sun and can be seen from afar. Because of the high alkali and salt content of these dry lake clays no plants can grow on the central surface of these "clay pans," but around their borders where the salt concentrations are less, a number of salt-tolerant plants have developed a special root physiology that not only makes it possible for them to grow but to actually flourish there.

Among the commonest of these, especially on the wet-type dry lakes is the deep-rooted greasewood (*Sarcobatus vermiculatus*), the "chico" of the Spanish-speaking people. This plant should not be confused with the widespread *Larrea* or creosote, also known as greasewood. So prevalent is *sarcobatus* on the clay dunes in the lower

Some desert plants have so adapted their root and leaf structures to salty soil and limited water conditions that they thrive where other plants could not last out the day. This month Dr. Jaeger tells about these specialized plants which grow along the borders of dry lakes and in alkali soils.

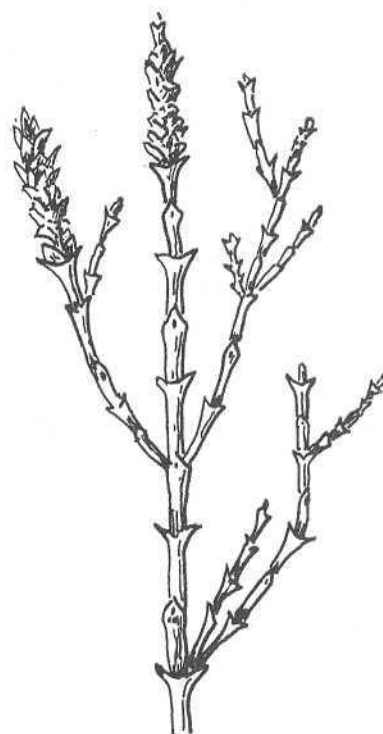
part of one of western Nevada's dry lake basins that the place was named Sarcobatus Flats by C. Hart Merriam who planned the famous Death Valley Expedition of 1891.

This shrub, which is said to be the second most salt-tolerant of American shrubs, grows to a common height of two to four feet and consists of numerous rigid interlocking spiny branches adorned with narrow fattish leaves which are so full of sodium chloride and potassium oxalate laden sap that when chewed there is a very unpleasant salt and acid taste. However, cattle do not mind it; it may even add to the palatableness of the herbage. It is an important range plant in Nevada and Utah. Horses, goats and sheep browse freely on it, especially in winter.

Dry greasewood burns with a beautiful yellow and greenish hot flame and for this reason I always make my camp fire of it when available.

The generic name *Sarcobatus* means "flesh thicker"; the specific name *vermiculatus* means "in the form of worms" and refers to the green caterpillar-like male spikelets which appear in numbers in spring and summer on the ends of the succulent-leaved branchlets. The name, greasewood, was given because of the general oily appearance of the stems and foliage.

One of the commonest of the few shrubs that grow along the Amargosa River and the clayey salt marshes of Death Valley, and about the borders of Great Salt Lake is the hardy pickleweed (*Salicornia*), also called samphire. In Death Valley it grows atop



Salicornia

the mixed clay and sand hummocks; in fact, it probably is responsible for the hummocks. The dust and sand drifts in among the branches and as the mounds build up the plants grow upward with it. It is called pickleweed because the numerous leafless light green jointed fleshy branches have a somewhat sourish taste. It seems to flourish in soils so salty and alkaline that it has few or no competitors. The burro is said to be the only animal that can stomach it and then only under starvation conditions.

A most unattractive fleshy-leaved shrub found in most places of high alkali-salt content is the inkweed (*Sueda*), its blackened stems and many rusty brown to dirty green leaves giving it a scorched and dead appearance. The sap is full of tannic acid and this gives it a sourish puckery taste. Few browsing animals will ever eat it, even though very hungry. It is called inkweed because early settlers made a poor sort of ink from it by boiling it in water with iron nails.

Among the plants with peculiar stems the scrubby bush called iodine bush (*Allenrolfia*) is one of the big surprises. The cylindrical elongate joints appear like juicy green beads strung on a cord. The plant is very tolerant of salt and alkali and sinks its long taproot sufficiently deep to get good supplies of water from beneath the salty wet silts of dry lakes of many parts of our western deserts. There is

much *Allenrolfia* growing in the Owens Lake area of the Mojave Desert and along the borders of Great Salt Lake.

Many kinds of saltbushes (*Atriplex*) are found growing in saline soils. The largest and most luxuriant is the big quail bush (*Atriplex lentiformis*) that grows on the borders of the lower Colorado River and the mud flats of the lower Coachella and Imperial valleys. It reaches a height of from three to eight feet and has an even greater spread. Often it forms intricate and impenetrable thickets, "so dense and resistant that a person might throw his whole weight against it only to be hurled back by the elastic rebound."

Several times when hunting for bird nests I have had occasion to learn that the thickets made by these big gray-green hemispherical bushes offer good hiding places for rattlesnakes. They probably like to live there not only because of the summer shade the bushes offer but also because of the

presence there of cottontail rabbits and wood rats which also use the quail bush for hideouts. Both mammals are the rattlesnake's favorite food.

In late spring and summer these saltbushes frequently are vibrant with the stridulations of millions of crickets; both during the day and long after sunset the big apache cicadas (*Diceroprocta apache*) make their frequent rattling raspish sounds. Above and amongst the bushes you may see flying by day the large cicada killing wasp (*Sphecius convallis*) which hunts the noisy bugs so that it may paralyze them with its sting and carry them off to provision its nest with fresh food for the developing larvae.

Saltbush jungles are among the most favorite haunts of that lively and frolicsome bird prankster, the roadrunner. Often you see him darting across the road and into hiding. In the crickets and cicadas found there he obtains ample food for most of his needs; a

lizard or two doesn't come amiss either. Often the roadrunner's nest of coarse sticks is built in the bramble of branches.

Another resident bird quite often seen about the big saltbush is the pale-colored Le Conte Thrasher. You will easily identify it by its near robin size and long curved beak. In the pre-dawn hour its clear ringing whistling song can be heard—the sweetest most easy to remember, it seems to me, of all the desert bird songs. Especially appealing is the rich song during the breeding season of late March and April.

Of the smaller quail bush residents are the Abert towhee, phainopepla, the melodious Salton Sea song sparrow and the lively lead-colored gnatcatcher. In winter a number of transient seed-eating birds frequent the quail bush, among them the Gambel sparrow, desert song sparrow, the Say phoebe and the Nevada spotted towhee.

Several times I have crossed Death Valley in late September and have seen vast numbers of the beautiful *Tidestromia* in full flower or fruit. This low-spreading annual that comes up after the occasional summer rains takes on beautiful shades of silver-green and rose-purple. It is one of the odd but handsome plants of the desert which although often plentiful in alkaline soils, is little known to the general public. I place it alongside desert holly in decorative value and often make winter bouquets of it. The plants long retain their beauty, both of form and color and are especially high on our list of choice holiday decorations. If you don't know *Tidestromia* by all means get acquainted with it. Being an annual and prolific seed-bearer, you need not have compunctions about gathering it. It is fairly common both on the Mojave and Colorado deserts.

Of our deserts' native deciduous trees the white-spined tornilla or screw bean is best adapted to live in salt and alkali impregnated soils; in fact, in many places it appears to require these soil constituents to grow to best advantage. Notable thickets of considerable extent of this peculiar leguminous tree are found in stream borders and moist flats from Death Valley eastward to Texas and southward to Baja California and Chihuahua.

Our native desert fan and blue palms often grow in places where alkali and salt is very evident, most of the moist ground near their bases being white with salt encrustations. Water found in palm oases often is so hard it is undrinkable. Salt grass (*Distichlis*), with creeping scaly rootstalks and leaves set in two distinct ranks, often

We Need Desert Photos . . .

One of the surest ways to advance your photography hobby with both added pleasure and cash prizes is to regularly enter the best of your desert pictures in Desert Magazine's monthly contest. Any subject will do so long as it is related to the Desert Southwest—the possibilities are as unlimited and varied as the land itself. Thousands of folks who share your interest in the desert are eager to share your photographic interpretations of this vast land.

Entries for the May contest must be sent to the Desert Magazine office, Palm Desert, California, and postmarked not later than May 18. Winning prints will appear in the July issue. Pictures which arrive too late for one contest are held over for the next month. First prize is \$10; second prize \$5. For non-winning pictures accepted for publication \$3 each will be paid.

HERE ARE THE RULES

- 1—Prints must be black and white, 5x7 or larger, on glossy paper.
- 2—Each photograph submitted should be fully labeled as to subject, time and place. Also technical data: camera, shutter speed, hour of day, etc.
- 3—PRINTS WILL BE RETURNED WHEN RETURN POSTAGE IS ENCLOSED.
- 4—Entries must be in the Desert Magazine office by the 20th of the contest month.
- 5—Contests are open to both amateur and professional photographers. Desert Magazine requires first publication rights only of prize winning pictures.
- 6—Time and place of photograph are immaterial, except that it must be from the desert Southwest.
- 7—Judges will be selected from Desert's editorial staff, and awards will be made immediately after the close of the contest each month.

Address All Entries to Photo Editor

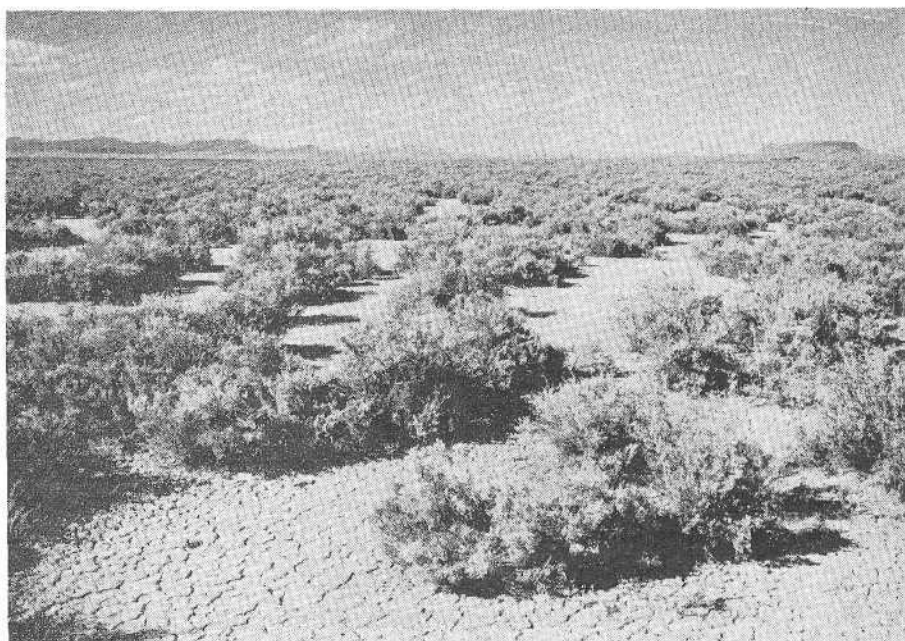
The Desert Magazine

PALM DESERT, CALIFORNIA

grows in the moist soils of these palm oases because it too is specially adapted to grow in such places. Frequently associated with palms and salt grass is the straight-stemmed silky-leaved arrow-weed (*Phichea serricea*) and the yellow-flowered composite known to botanists as *Haplopappus acradenia*. When in flower it scents the air with its oily resins and perfumed nectar. In Mexico a tea is made from this plant and is used as a bath for the alleviation or cure of rheumatic pains.

Desert holly (*Atriplex hymenolytra*), widely distributed from northern Death Valley and southern Nevada and Utah to the deserts of northern Mexico, seems to grow best in gypsum soils. Sometimes it is about the only plant that will flourish in such barren vertical-walled canyons as found in the Indio and Mecca Mudhills of the Colorado Desert. It sometimes profits from the summer rains which occasionally visit these areas. The leaves may be succulent at a time when most other plants may be suffering from long drouth. Persons desiring to grow desert holly should plant the seeds in gypsum soils brought in from the desert.

There are two foreigners among plants that have escaped and spread both rapidly and widely in alkaline



Greasewood (Sarcobatus) growing in pure stands in the alkaline flats of the Escalante Desert of Utah near Enterprise. Photo courtesy U. S. Salinity Laboratory, Riverside, California.

moist places on our deserts. One is the prickly Russian thistle (*Kali sal-sola*), the other the slender-branched shrub of Mediterranean origin, the flowering deciduous tamarisk (*Tamarix gallica*), commonly called salt cedar. The latter has small seeds, each bearing a tuft of hair on one end to aid in their distribution by wind currents. They have germinated in the soil of almost every desert seep streamlet and marsh from Death Valley southward into the Sonoran deserts of Baja California and mainland Mexico. Because of its handsome pink to purple flowers, its tolerance of poor soils, heat, frost and drouth, it has been widely planted around homes on the Mojave Desert.

The manna of Mount Sinai, which consists of a mucilaginous sugar, was produced by a variety of this tamarix.

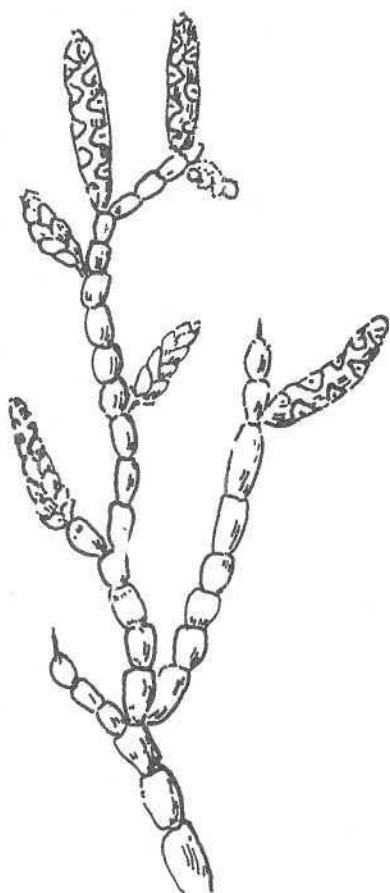
Another tamarix, *Tamarix articulata*, grows as a vigorous tall evergreen tree. It is much planted as a wind-break and ornamental in the Colorado Desert. Although it is a quick grower its wood is very hard and makes valuable fuel.

Of other cultivated plants date palm, barley, beets, cotton, alfalfa and onions seem most tolerant of alkaline and saline soils. On the Mojave Desert near Victorville I used to camp on summer nights on a certain dry lake. By day I would delight in racing my car over its smooth hard surface.

One day, what was my utter surprise to see that it had been plowed up and planted to onions and barley! Water had been developed beneath its barren surface (very hard it was, of course) and was used to irrigate the

barley and onions. Although nature had never grown anything on this dry lake, here was produced a crop of enormously large good quality onions that must have surprised even the hopeful planter. The yield was simply enormous! The barley did almost as well!

Allenrolfia



Quail Bush



They Harvest Desert Glass . . .

Lonnie and Hele Spearman are refugees from the big city living the kind of life they have always wanted to live on their 160 acre Nevada ranch. Besides fishing in the river which runs through their property, painting, pottery making and collecting ghost railroad items, they tend a unique desert glass garden where old fashioned glass pieces are taking on beautiful hues of blue and purple from the action of the sun.

By JANE ATWATER

Photographs by Adrian Atwater

WHEN HELE and Lonnie Spearman found themselves surrounded in Hollywood by close neighbors, super-markets, drive-in theaters, freeways and airports, they searched for months until they found a place which was the answer to their dreams—160 acres of sand, sagebrush and sunshine, a ghost town and a river.

Ten years ago they learned by chance that the old township of Hudson, Nevada, was for sale. They drove out to investigate this west-central Nevada tract straddling the Walker River, and through which the Copper Belt Railroad train chugged daily. Im-



Lonnie and Hele Spearman. Bell behind them was on the engine of the Copper Belt Railroad train that passed their home each day before line was abandoned in 1948.

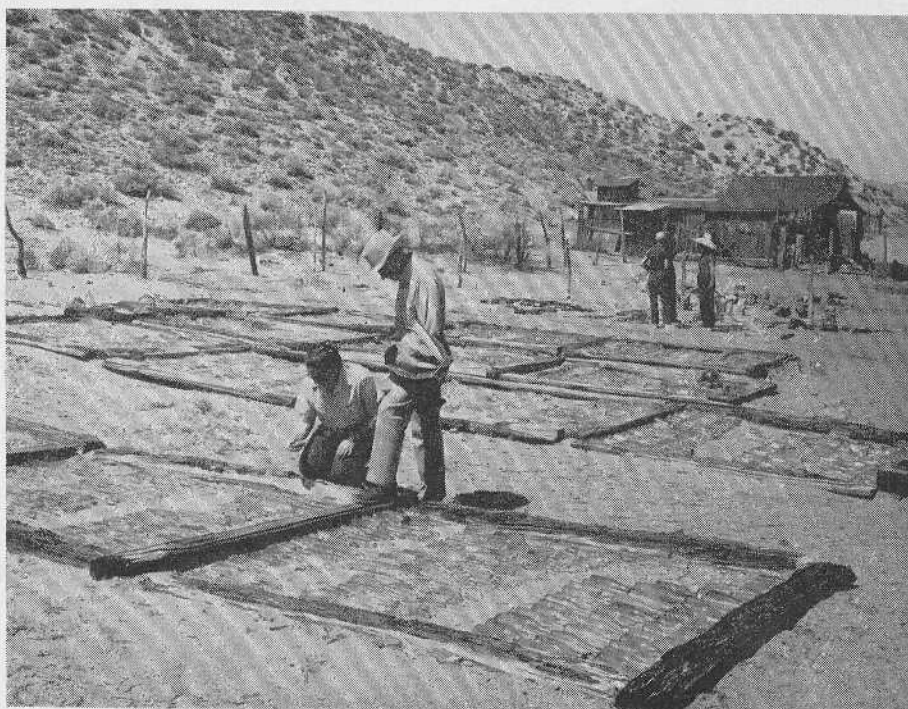
mediately they fell in love with it. Here Lonnie would be able to fish and Hele to paint and make pottery without the distractions of city life.

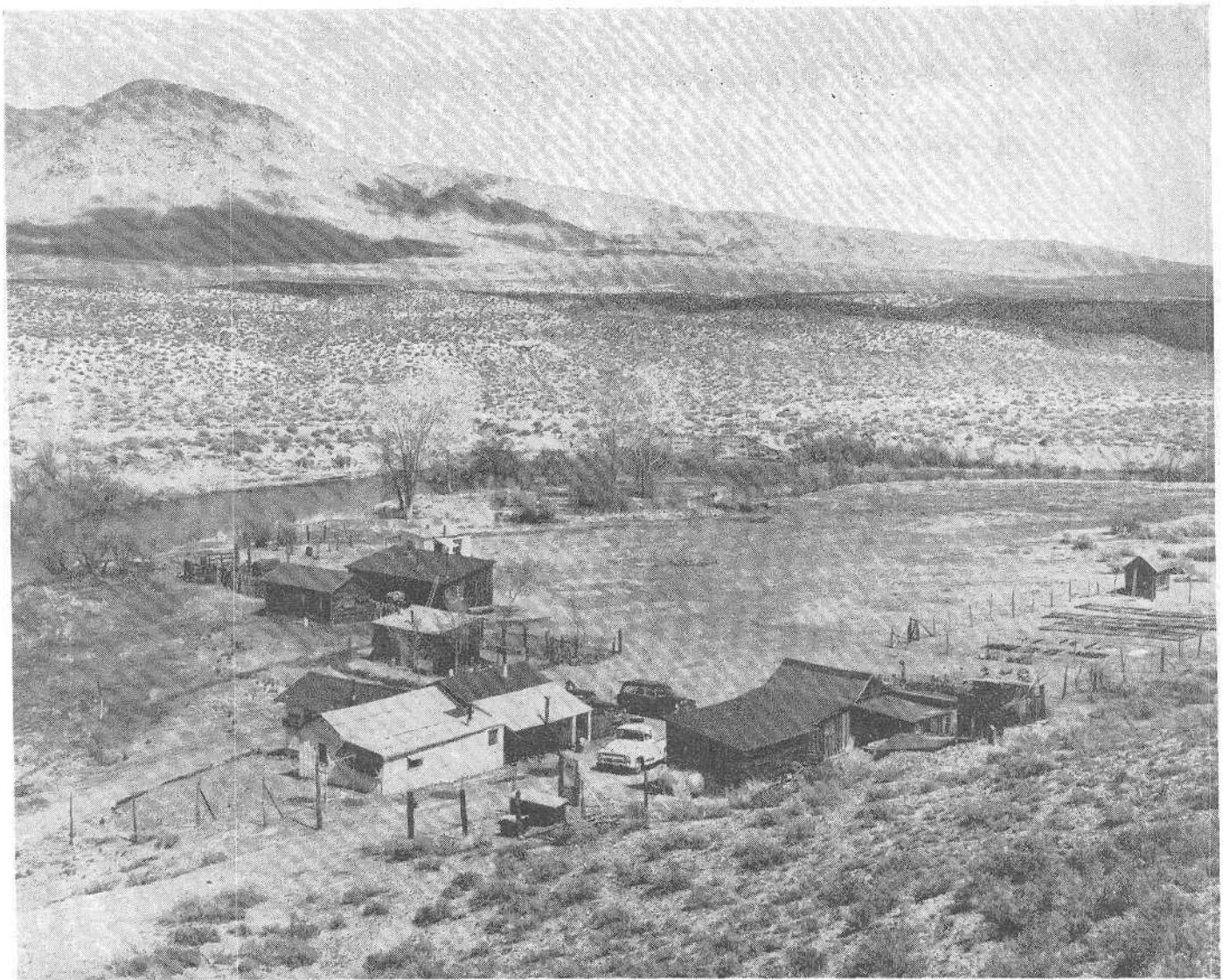
So taken were they with Hudson they spent that first night there. Later in the evening, one of the worst thunderstorms in the state's history struck and the Spearmans spent the dark hours moving sleeping bags about in the old town's one remaining shack in an effort to keep dry. Next morning, not in the least discouraged, they purchased the property and ordered materials for a new roof.

Through the years they have combined modern conveniences with relics of early Nevada to create a homesite perfect for them in every detail. An automatic self contained air-cooled electric plant pumps water from the well and supplies the house with lights, refrigeration and indoor plumbing. The original building has been remodeled and extended into a comfortable home and additional structures have been purchased and moved to the property for studios and guest houses for friends and relatives. In their arrangement the ghost town of Hudson seems to live again. The residents of Smith Valley are accustomed to seeing dilapidated old buildings moving down Highway 3 to Hudson to become part of the Spearmans' establishment.

Their's is not a working ranch so far as stock or agriculture is concerned,

Visitors inspecting desert glass specimens in Spearman's glass garden. Shacks in background house ghost railroad relics.





Walker River flows through the Spearman ranch. Copper Belt Railroad ran on opposite bank.

but Lonnie has one of the most original gardens in the state. On a half acre surrounded by a high wire fence and divided into small plots by railroad ties desert glass is changed in color by the sun.

One section is devoted to two-bit and four-bit mickeys, small flasks that are turned a blazing purple by the ultra-violet rays of the sun. They derive their names from the prices and contents with which they were filled at the local saloon. Other plots are covered with fish bowls, salad and cake plates, glass door knobs, lamps, chimneys, ink wells, punch bowls, candelabra, cruets and any other interesting bits of glass that come this way. A separate part of the garden is lined with old brown patent medicine bottles that will not change color but add to the interest with such labels as "Dr. Hottenstetter's Stomach Bitters" and "Cure for Consumption."

Most of the glass ranges in color from pale lavender to brilliant purple

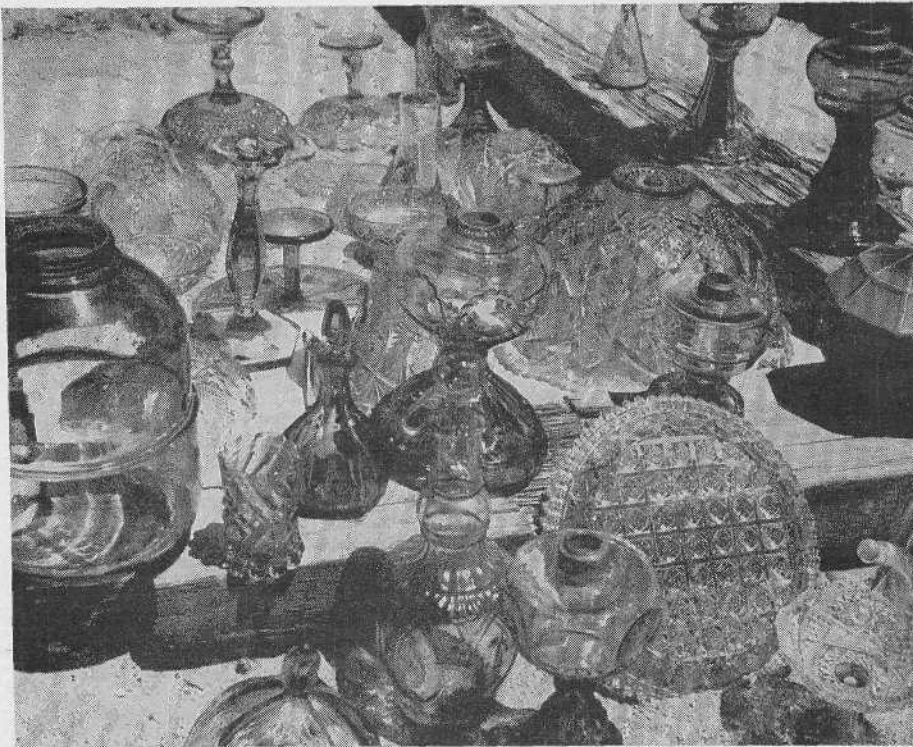
while some has turned amber, misty sea green and frosted green. The chemical reaction responsible for the shades of blue and purple in old glass involves oxidation of almost colorless manganic oxide. Shortly after World War I glass making was modernized and most glass made in this country after that time will not change in color. European glass still is made by the old method and will take on a bright blue color if left to the elements.

When Lonnie first went into the desert glass business he was besieged with advice as to how to help the coloring along. He has tried most of the suggestions, including placing the bottles on silica sand and on black tar paper, but after 10 years it is his opinion that nothing works so well as just plain desert sand and the sun. Some glass will show a change after a few months and some deepen in color throughout the years. However, if a bottle shows no change in four years, Lonnie packs it away to make

room for more glass waiting to blue.

He and Hele make many trips to ghost towns in Nevada looking for glass and have acquired much knowledge of the state's history and topography. He also is an authority on ghost railroads such as the Copper Belt which was discontinued in 1948, the Virginia-Truckee and the Carson Colorado. Lonnie does a flourishing mail order business and his mail box (P.O. Box 64D, Smith, Nevada) is constantly filled with orders for desert glass, souvenirs of the old railroads and information about them.

Hele has converted one of the old buildings moved onto the ranch into a studio where she paints and exhibits. In another building she turns out distinctive pottery. On a table near the door are unfinished cups, vases, lamps and dishes. Her potter's wheel stands beside a window and just behind it is a gas-fired kiln capable of heat to 1850 degrees Fahrenheit in which she bakes and glazes pottery. Shelves in the



The Spearman's' choicest pieces of desert glass being turned by the sun into beautiful blue and purple shades.

back of the shop are covered with gay and colorful finished products. Twisted cup handles are Hele's trademark, a process which cannot be done commercially. The red clay she uses comes from a hillside on their ranch and the white clay is imported from California.

Another little building has been made into a shop where she sells antiques, Indian basketry, jewelry and imported glass.

The surroundings are kept immaculately clean and for bits of color, Hele has painted little wood stoves and milk cans standing about the property, pink, turquoise and yellow. Each serves a purpose, such as an end-table or a place to store bean poles.

Hudson flourished briefly as a point of shipping and commerce when the Copper Belt Railroad was built in 1911. Supplies for Bodie and Aurora were brought here by rail and then hauled the rest of the way by freighters. The train picked up copper ore, agricultural products and passengers between Mason and Wabuska where it connected with the old Carson-Colo- rado line. Before the advent of the white man, an Indian trail crossed the ranch, later followed by covered wagons of the settlers. When one of these men, a fellow named Hutson, was thrown from his horse and killed here, the area was named Hutson Pass in his honor. Later it was corrupted to Hudson Pass and finally to Hudson.

Two and one-tenth miles east of

Smith on Highway 3 a sign standing beside a cottonwood pole bearing the word "Hele" points to a dirt road heading north across the desert, once the bed of ancient Lake Lahontan, to Hudson. The Lahontan shore line is etched on the rugged, barren hillsides. If generous rains are received here in early winter, wildflowers and flowering shrubs run riot. Squaw tea, greasewood, hop-sage and Great Basin blue sage wave their blooms proudly and purple mat and small flowered eucrypta lap at the sides of the road. Sego lilies, sand verbena, desert primrose, locoweed, hoarhound and Indian paint brush add to the unbelievable color display. Three and two-tenths miles from Highway 3 is the gate house to the Spearman holdings.

The Spearman's have a good life on their Nevada ranch. Breakfast often includes a fresh German Brown or Rainbow trout that Lonnie has caught in the river. Lunch on the patio is an informal affair with two Siberian Huskies and a little black dog of unknown origin waiting hopefully for a handout. There are visitors to be shown about in the afternoon and friends and neighbors drop in too, and often stay on for a patio supper served as the sun sinks behind the hills leaving a blaze of color in the sky and on the river.

With their work and their hobbies, their home and their own private desert, the Spearman's have realized an ambition most of us like to dream about.

THE *Desert* MAGAZINE CLOSE-UPS

Helena Ridgway Stone, author of this month's "How the Sun and a Tortoise Saved Little Denny's Life," is a grandmother who prefers writing poetry and verse to prose. Usually, she said, her poetic inspirations come to her at three o'clock in the morning. Many of these poems have appeared in *Desert* and other publications.

She was born in Minneapolis, Minnesota, but moved to Denver, Colorado, at an early age. She now resides in Glendale, California.

* * *

Roving Reporter Nell Murbarger won four first, one second and one third place awards in the 1956 competition of the California Association of Press Women. *Ghosts of the Glory Trail*, Miss Murbarger's first book, was named best adult non-fiction book by a California woman writer; the Navy landgrab story in *Desert's* October issue was judged top news story in a magazine; first award for a feature photo was won by Miss Murbarger for her June *Desert* "At Rest" picture of an old freight wagon; and "Birds of Anaho Island" in the *Natural History Magazine* won best magazine feature story honors. In the daily newspaper feature story category, she took second place for an article in the *Nevada State Journal*. Miss Murbarger's final award was third place in the historical article category for her story about the Old West's charcoal industry in the June *Desert Magazine*.

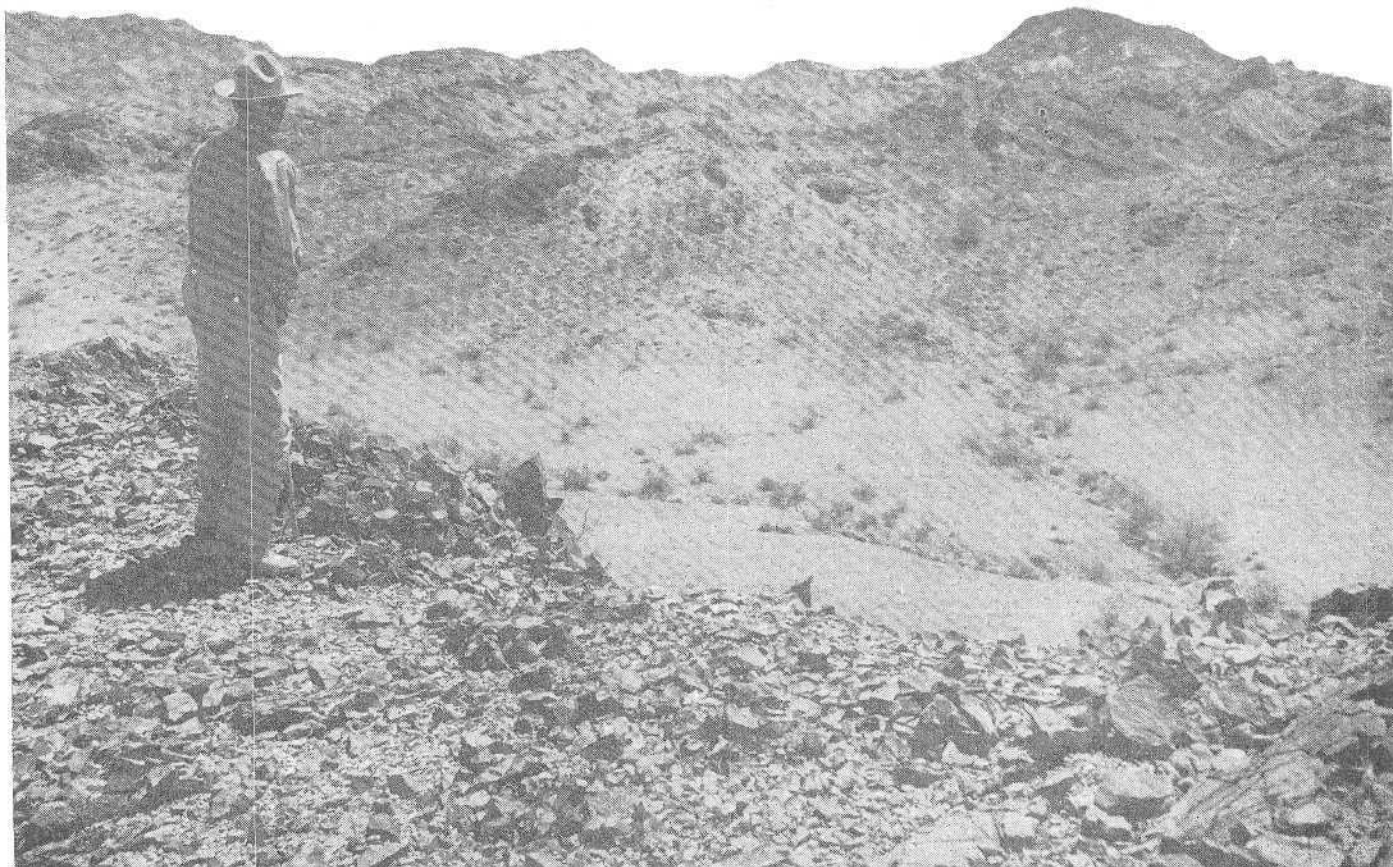
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Mrs. James L. Kennedy of Douglas, Arizona, a librarian by profession and a writer by avocation, is author of this month's "Decorative Desert Hedges." She is a native of Pittsburgh, Pennsylvania, but now an ardent Westerner. She writes that she has succumbed to Arizona's sunsets, mountains, canyons, deserts, vegetation—and even the absence of vegetation in some spots.

Mrs. Kennedy and her husband live in an old but reconstructed adobe house and she is a member of the Huachuca Writers.

* * *

Ruth Reynolds of Tucson, Arizona, who writes the home and garden page for *Desert Magazine* each month, is in the hospital temporarily undergoing treatment for a minor ailment. She plans to resume her writing for *Desert* as soon as she is released from the doctor's care. *Desert's* staff wishes her a speedy recovery.



Through these low hills across the wash ran the old Cibola-Yuma cattle trail. The fabulous lost silver ledge of the Trigos, which lay close to this trail and near the north end of Clip Mountain, right background, should be somewhere in the area of this photograph.

Lost Silver in the Trigos . . .

By HAROLD O. WEIGHT
Photographs by the author
Map by Norton Allen

LUCK WAS NOT with Jose Maria Mendivil when he went mine-hunting in Arizona's Trigo Mountains in the early 1880s. He found his mine, all right, while prospecting an unnamed mountain slope 30 miles north of Yuma. There he discovered surface croppings so rich that chunks of silver ore lay like slag thickly scattered down the hillside. His strike—the Silver Clip—became the greatest lead-silver producer ever worked along the Colorado River. In four years of glory—1883-1887—its flooding torrent of ore was worth more than a million dollars.

That was luck indeed—for someone—but not for Jose Maria Mendivil.

There is a story around Yuma that he received \$200 in cash for the million dollar Clip. His grandson, Mike

During the past 75 years, four men have found—and lost—the elusive ledge of silver thought to be only a day's journey north of the lower Colorado River's most famous lead-silver bonanza, the Silver Clip Mine. Four men—desert-wise and well aware that such an outcrop could have meant wealth beyond their wildest dreams—saw it once, and never again. This is fitting testimonial to the wildly broken country in which this ore lies sleeping through desert storm and sunshine.

Mendivil, says that he virtually gave it away.

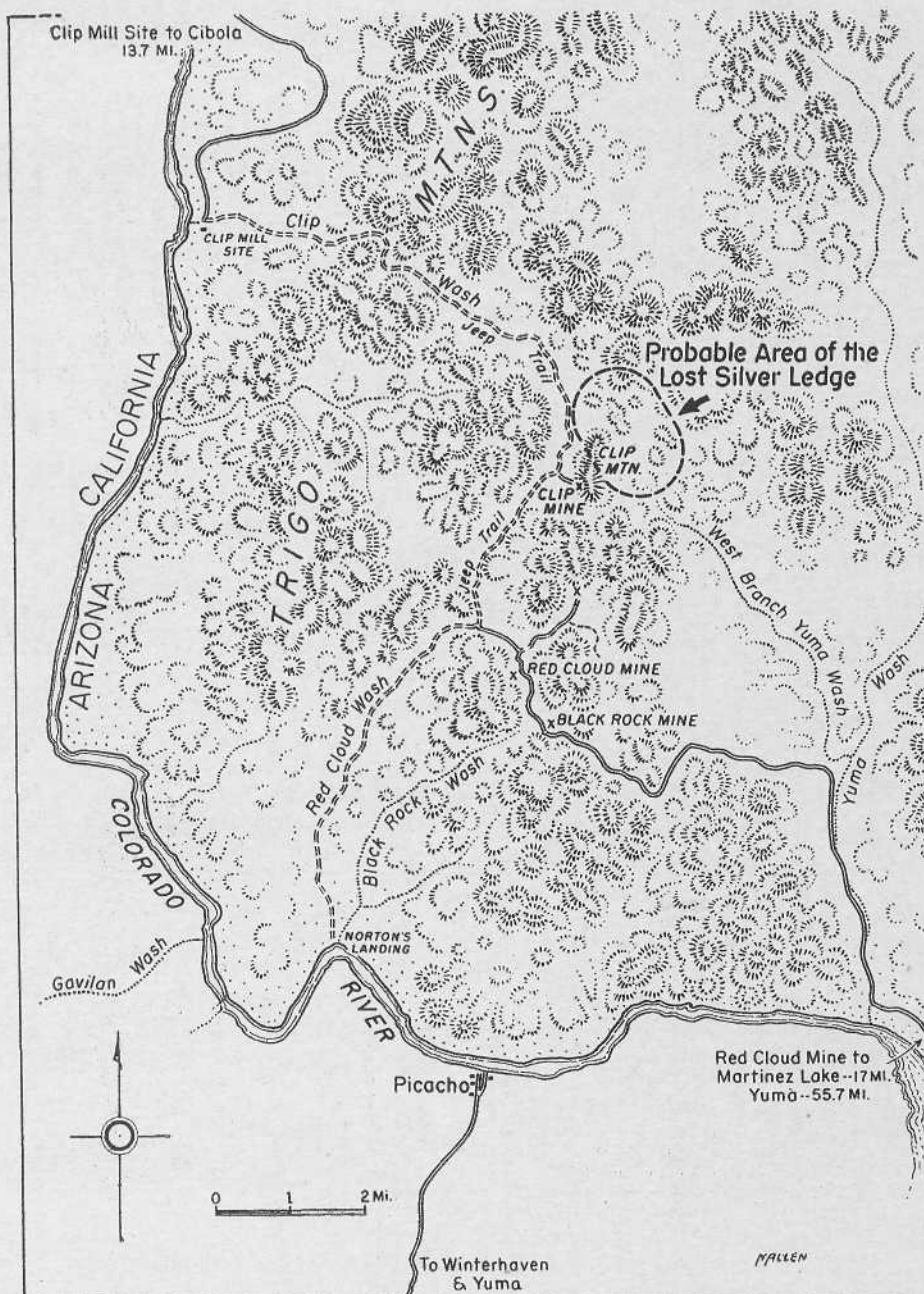
And as though one such lost fortune were not enough, oldtimers along the river insist that another bonanza was within Mendivil's reach while he was in the Trigos. For while the records bear witness that the Clip was the richest silver ledge mined in the Silver

District, the legends say that it was not the richest one existing there.

It is gospel in that country that somewhere to the north of the old mine, but within a day's journey of it, another fabulous vein lies hidden in a desolation of ridges and canyons, buttes and washes. A ledge so elusive that it has been seen and sampled at least four times in the past 75 years—but each time could not be relocated.

Mendivil had his chance at the hidden treasure vein while still at the Clip. A Mexican prospector camping there lost his burro and by determined and stubborn tracking, eventually overtook the animal. Naturally, he examined every likely outcrop he passed. One was so promising he took samples and later showed them to Mendivil. He, too, thought they carried values. But lead-silver ore is deceptive. How much was silver? Only an assay would tell.

Mendivil, the prospector suggested,



change Hubbard suggested. Often a maker of grand gestures, he told the mining man to go ahead and take the Clip. Later they might see about the trade.

Hubbard did develop the mine. By 1883 he had proven that the ledge, more than 150 feet vertically, was at least 300 feet long. Its width—all high value ore—was from 18 to 27 feet between hanging wall and foot wall. And this rich lead-silver ore was so easy to work that four men could take down 50 tons a day.

Down at the Colorado River, seven miles away, Hubbard had a 10-stamp mill constructed. It was built on a point of mesa at the mouth of Clip Wash, 500 yards from the river. (Clip post office, Anthony G. Hubbard, postmaster, was established there in February, 1884.) Across the savage country from the mine to the mill, mostly down the bed of Clip Wash, he worked a freighting road. Soon, every day, ore wagons and great teams crowded the twisting miles of rock and sand, and each day the thundering stamps crushed another 25 tons of Clip ore—the capacity of the mill's amalgamation pans.

A boom through all the Silver District followed. The Black Rock, Red Cloud, Engineer, Emma, Silver Plume, Pennant, Princess, Papago and Remnant were worked in that decade. But from 1879 through 1889 the whole district recorded a production of only \$1,696,000 in silver and lead. And of that sum the Silver Clip alone produced \$1,110,000.

Hubbard's superintendent at the Clip mine was a man named Pickenbaugh. According to Ed Rochester, who knew him later, "the people around the country just called him straight 'Pennybaker' for short." Pennybaker was married to an Indian woman. One day another Indian, probably a relative, told the superintendent that not far to the north of the camp was a big ledge like the Clip that had never been worked. There are always such stories circulating in a mining country, and Pennybaker may have asked the Indian to guide him to the ledge out of simple curiosity, just to see what a native would consider good ore. At any rate, he was not prepared to act upon what he found. For the ledge was there, and it looked good. And Pennybaker knew what rich silver ore should look like in that country.

But he continued as superintendent of the Clip and did not file on the claim or attempt to mine it. Ed Rochester suggests that it was a matter of practical ethics. Pennybaker was an employee of the Clip company, and in those days when a man was hired

could afford to have the assay made. If the samples were good, they would go back together and file on the ground. Could he find it again? Certainly! Beyond doubt! It was a big ledge. It was within a day's journey of the Clip. It looked richer than the Clip. (Only later were lost mine hunters to wonder if that "day's journey" meant one way or both. By that time, there was no answer.)

Mendivil accepted the proposition. He had the rock assayed. It was rich. Silver rich. But for some reason there was a long delay between the agreement and the receipt of the assay sheets and during that period, the Mexican prospector had followed the call of more distant ridges. No one knew where he had gone. No one has since identified him.

Jose Maria Mendivil suspected that

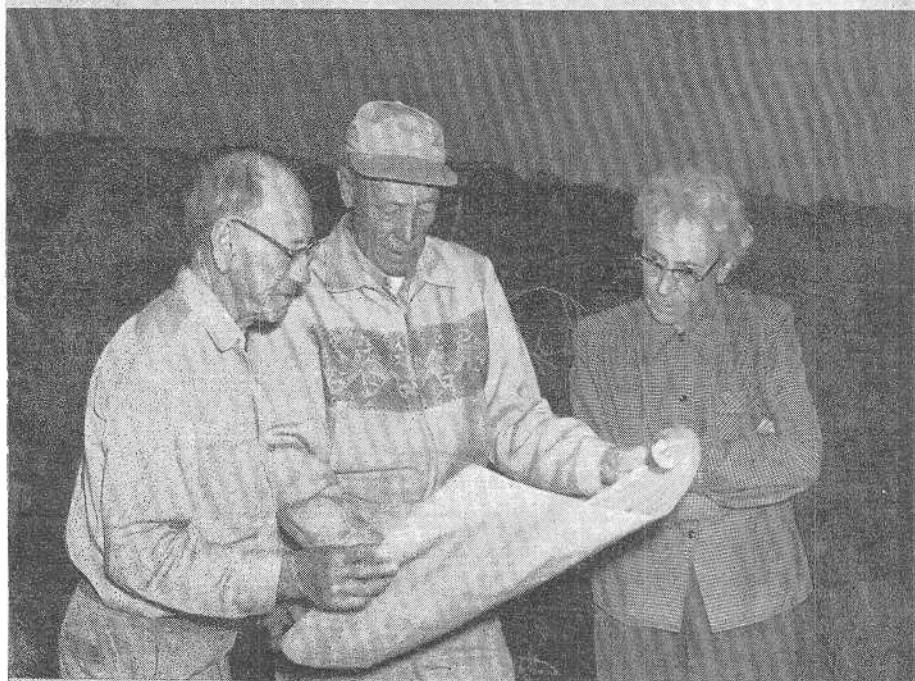
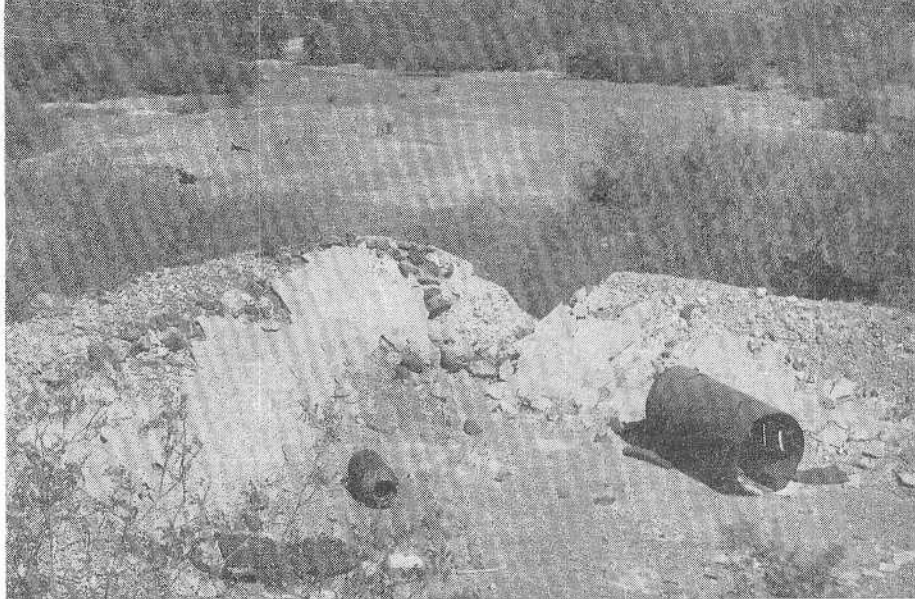
without guidance the search for the silver ledge would be long and very likely fruitless. In the meantime, business affairs at the camp of Picacho, across the Colorado in California, demanded his attention. Mendivil was one of the most prominent figures in old Picacho. He owned rich gold properties and the townsite was developed on his homestead.

It was this pressure, according to grandson Mike Mendivil, that decided him to let the Clip go. A mine operator named Hubbard, one of the great mine developers in Arizona during that period, offered to exchange valuable San Diego waterfront properties for the silver claim. The worth of the Clip had not been proven, and Mendivil had too many irons in the fire to do anything about it. He was, in fact, too occupied to bother with the ex-

full time, all of his time was considered as belonging to the employer. The company might say that he was, legally, their agent when he discovered the ledge. They certainly would want a share of it, and would be unhappy if they didn't get it. And Pennybaker was well satisfied with his position as mine superintendent—liking it better than the idea of a mining venture of his own which might or might not pay off. So he filed the location of the silver ledge away in his mind for a time when he might need it.

With the passing years, the known highgrade in the Clip was worked out. Ore had to be rich to make its mining profitable in such a difficult and isolated location. How rich the Clip's ore must have been by present standards may be judged from the fact that it paid handsomely although about 11 ounces of silver in each ton were lost in the milling processes. That, at least, is an engineer's estimate of the silver content of the approximately 30,000 tons of tailings remaining at the mill site.

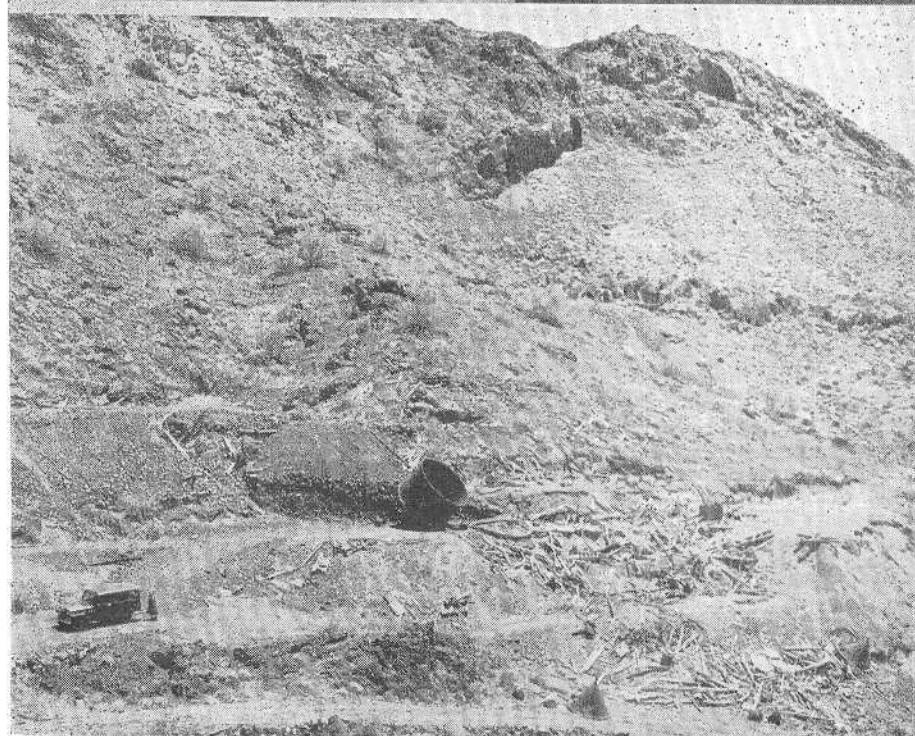
"I practically made a living sampling these tailings for different outfits," Ed Rochester recalled one day while we were at the Clip mill ruins. "I even came down once, about 1921, from Blythe on Old Man Kirby's river boat. The river was across on the California side of the bottoms then, and we had a difficult time packing 500 pounds of samples on our backs through the mesquite and arrowweed jungle." The shifting river has carried much of the tailings away, Ed says. The silver remaining is in amalgam and almost impossible to separate from the mercury. The last attempt to work the tailings was made by Joe Shiner in the mid-



Top — Looking from Clip mill site across the Colorado River to California. Some of the thousands of tons of red tailings from the rich Clip ore milled in the 1880s can be seen, center, spreading down into the bottomlands. Tailings contain 11 ounces of silver to the ton.

Center — George Converse, center, traces for his sister, Helen Converse, and Ed Rochester the route he and Earl Kerr took in 1951 when Earl may have rediscovered the lost silver ledge of the Trigos.

Bottom—Clip mine on Clip Mountain in the Trigos. Tank and wooden wreckage, center and right, are from the 100-ton cyaniding mill built in the 1920s, when an attempt was made to reopen the property. Part of the open cut, marking the great vein from which more than a million dollars was mined in four years in the '80s, can be seen upper center.



1920s. Remnants of his adobe and sheet metal cyaniding plant still remain.

When the Clip ore values fell below the cost of mining, Hubbard bought the Harquahala mine near Salome, and moved his operations there. After he left the Clip there was only one real effort to reopen it — 1925-1929. A 100-ton cyaniding mill was built at the mine, and water was pumped to it from the Colorado. But the project did not pay.

Over at the Harquahala, Hubbard did very well indeed. And Pennybaker remained with him as superintendent of that mine. Finally, the Harquahala, too, was worked out. By then Pennybaker, grown old, retired and moved out to the coast, somewhere near Los Angeles. The memory of that ledge the Indian had shown him so many years before in Arizona, began to plague him. Probably in the nourishing environs of his imagination it had grown even richer through the years. He returned to Arizona and went to Cibola, by then the nearest inhabited spot to the Clip mine and 14 miles up river from Clip mill site.

The late Bert Hart was living at his ranch near Cibola then. Bert had prospected and mined, and knew the Silver District since childhood. With Hart, Pennybaker set out for the ledge to which the Indian had guided him.

But he could not find it.

Cloudburst country does change. But even more does memory change and fade and play tricks as the years pass. That fact Pennybaker would not accept. He came back from the coast two or three times more. Each time, certain that he had remembered the trail correctly at last, he went into a

different territory. Each time, the vein was not to be found. Finally he went back to the coast and did not return.

In each of these cases, the location was given only as "north of the Clip" and not too far from it. The third man known to have seen the ledge narrowed the area in which it can exist. He was Santiago Lopez, the great cattleman of that country during the latter part of the last century. Until recently the melted walls of his adobe home could be traced out near the boat landing at the southern end of Cibola Valley.

When Lopez drove cattle to Yuma, he followed Clip Wash from the river to a point less than two miles from the mine, where a left fork entered. Here the cattle trail took the side wash, went through a pass in low hills just to the north of Clip Mountain and then entered a basin at the head of a west branch of Yuma Wash. Lopez took this branch down to main Yuma Wash, followed it to the Colorado River and went on down the river to Castle Dome Landing (now Martinez Lake).

This trail, avoiding rugged mountains which reach to the river, was used by all cattle drivers and by most horseback and foot travelers who did not have some reason to take the rocky road past the Black Rock, Red Cloud and Clip mines. Of course, not exactly the same path was followed every time, and cattle drivers undoubtedly had to leave the trail from time to time to chase back wandering animals.

But somewhere in the pass area north of Clip Mountain, or northeast of it, on this trail or near it, Santiago Lopez stumbled upon the great silver ledge. He was driving cattle at the

time, and had to get them to Yuma. But even a short examination excited him. When he came back, he would prospect the ledge out and file his claims on it.

He returned as quickly as he could. The picture of the ledge was still sharp in his mind. But he could not find it. He never did find it, although each time he used the old trail, he searched again.

The last man known for certain to have seen the fabulous ledge also was the first to put a monument on it. He was Julian Parra, son of Felisario Parra who discovered the rich Mesquite Diggings in California's Chocolate Mountains. A prospector and miner in the wild Colorado River country during most of his life, he, too, was following the old cattle trail on horseback, making a short cut from Castle Dome Landing to Cibola. Undoubtedly he was prospecting as he went. He found the silver ledge and recognized its richness and placed a little monument upon it to testify to his discovery, then went about his business. When he came back, he could not locate the ledge nor the monument. He, too, reported its location was along the old trail north of Clip Mountain. To the end of his active days, he made hunts for the lost ledge. Again and again he told his sons:

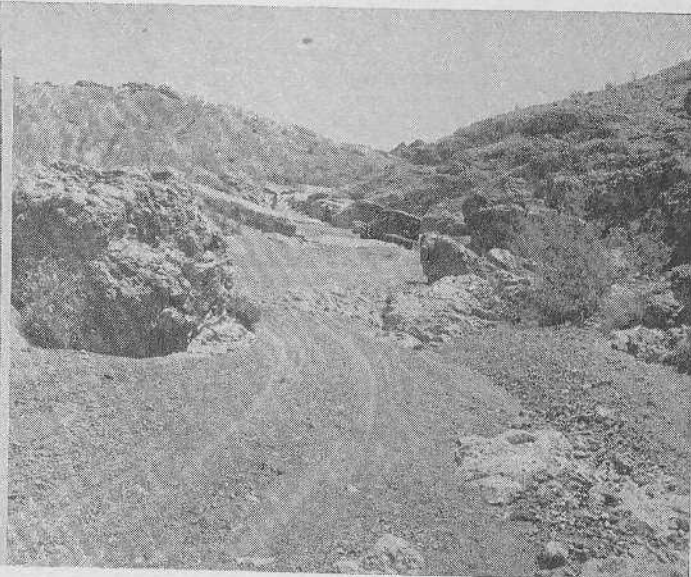
"It is richer than the Clip."

I first heard the story of this most elusive of lost ledges one spring evening at Picacho, across the river from the Silver District. When Ed Rochester finished the telling, his partner, Earl Kerr, looked pensive.

"Put them all together," he said, "and it narrows down to a pretty small area. I think I could find it."

Looking north from the Clip Mine to the area of the lost mine. The old ore-freighting road, now impassable, was built in 1883 direct from the Clip to Clip Wash.

Today the route up Clip Wash, part sand and part rock cascades, is shown on the U.S. Geological Survey quad only as a trail. Four-wheel drive is advised.



In 1951, Earl made his hunt for the ledge. George Converse and Sumner Farrar went with him. Earl told us about it, with a smile of triumph, when Lucile and I went down to Picacho Christmas Day of that year.

"I found a big silver ledge in just about the right area, and it had a little old tumbled down monument on it."

"Was it richer than the Clip?" I wanted to know.

Earl shrugged. "It looked good. I just grabbed a sample off the top as I walked by. I had it assayed. It ran two or three ounces of silver to the ton, two or three percent lead."

Ed broke in: "It was the kind of ore that assays better to the eye than it is."

"But that was just a grab sample," Earl said, "and it's a big vein. It has possibilities."

Did he have trouble finding it?

Earl shook his head. "It's on the contact between the andesite and red granite. You can see it from half a mile away. Going over a small saddle, it stands up in the air about four feet, and it's about 15 feet wide and shows up for about 30 feet. I don't think they got in the right district hunting it, because they didn't think there was any ore on that side of the mountain. But undoubtedly the vein is the same as the Clip."

Was he going to do anything with it?

"Yes," Earl said. "We didn't prospect it much. It was hot weather and we let it go until next spring. Then we'll go in there again. It has the earmarks of something probably very good."

But Earl never went back. He died suddenly before the return trip could be made.

Since that time Lucile and I have been up Clip Wash to the Clip Mine and on to the Red Cloud, and all through that country of the lost ledge with Ed Rochester. It is a wild, vivid, rugged and lonely country, like much of that along the lower Colorado. And lost mine hunters there today face one more problem than their predecessors did. Go very far back from the river and you are in the Army's Yuma Test Station. To me this is one of the most inexcusable of the military seizures, since a great portion of the nearly-million acre reservation is seldom if ever used. With most activities centered in the Imperial Dam area and across Highway 95 east of there, it seems possible that a Congressional investigation would result in a drastic reduction in area, without impairing the function of the base.

The Clip mine lies either at the edge of the Test Station reservation or in its buffer zone. The lost ledge, prob-



Ed Rochester, in one of the glory holes of the Clip mine, examines rich lead-silver ore left in a supporting pillar of rock. The huge cottonwood logs, left, were cut near the Colorado seven miles away, hauled to the mine and put in place nearly 75 years ago.

ably, is just in or just out or in the buffer zone, and since the reservation is there at present, it must be reckoned with. So, too, must the normal dangers of the country. It is not the place to prospect during the killing days of summer heat. Nor should its exploration be attempted except with four-wheel-drive.

George Converse who, with his sister Helen, lives at Picacho, has not attempted to return to the ledge Earl found. George loves the river-desert country, but prospecting is only an occasional hobby. Recently at his home, going over the details of the trip with him and Ed Rochester, I learned that Earl actually was the only one of the three who saw the ledge.

"We followed the old road from the Red Cloud past the turnoff to the Clip," George said. "A mile or two farther on we camped in the wash by the road. Next day Earl and I hiked through the pass north of Clip Mountain, between it and the main mountains of the Trigos. There was a good trail, apparently used by animals. We went into a basin at the head of the west branch of Yuma Wash. We prospected for an hour or two, then started back.

"We returned by a fairly low pass, slightly to the north of the place where we had gone in. A short narrow canyon came down from the northeast on a contact between the granite and the volcanics. Earl went up into it alone and when he came back, in 15 or 20 minutes, he said he might have found the ledge. He showed me samples he had knocked off.

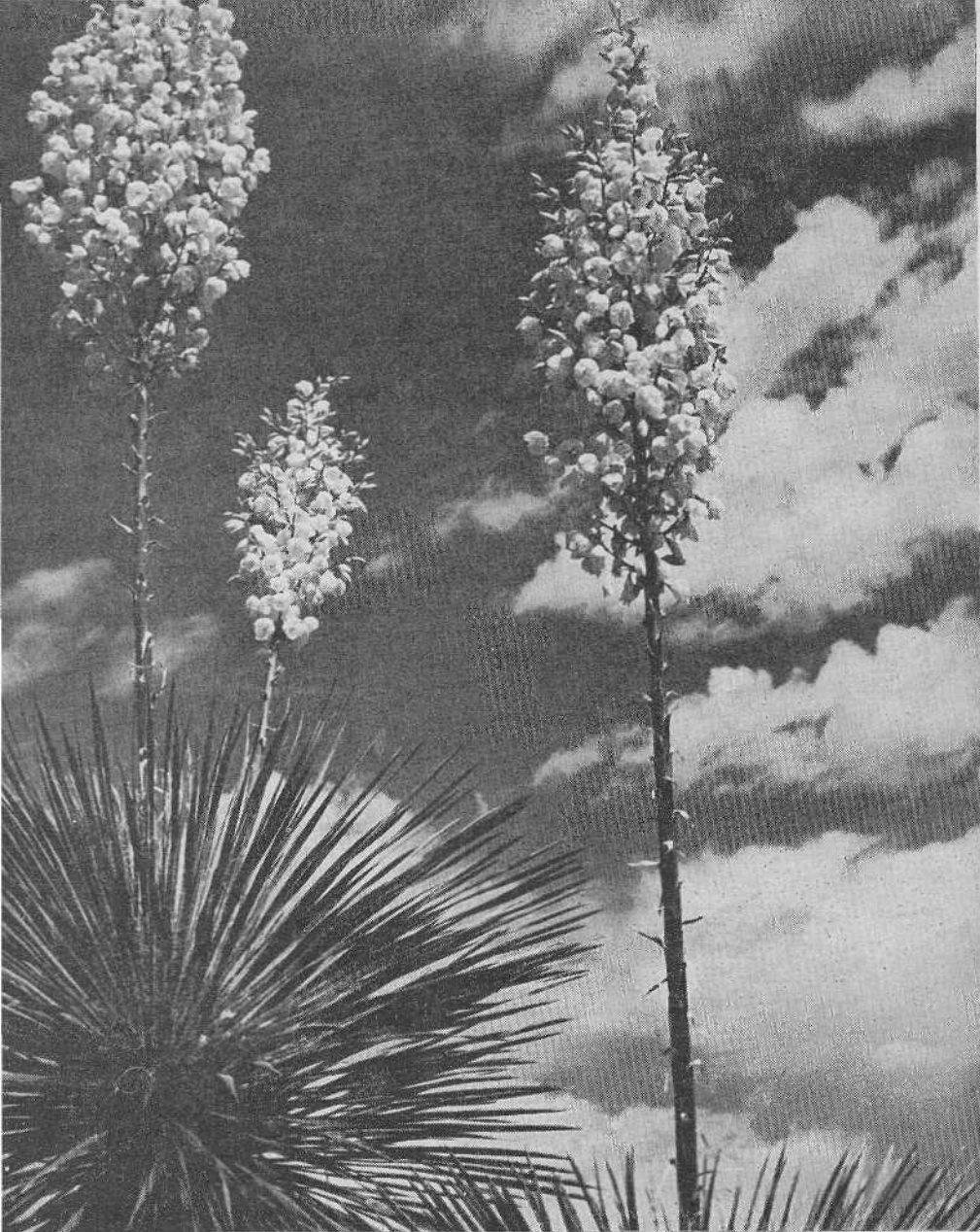
"It was almost supper time when we got back to camp. We planned to go back next days, but a storm came up that night. Thunder and lightning, and the rain poured down. The wash was no place to be in if we were going to have a flash flood, so we broke camp at 2 a.m., drove all the way to the Red Cloud, and spent the rest of the night in the old mess hall there. Next day we decided to go home and return in better weather."

"It's been more than five years now," I said. "Do you think you could go back to the canyon where Earl found the ledge?"

"I could," George said.

Ed Rochester, who has wandered that confusing country much of his life, smiled his slow smile.

"You want to bet you can?" he asked.



Yucca

By VIRGINIA CARLSON
San Diego, California

Queen of the deserts' fragrant flowers
Tall Yucca boasts of ivory towers
Where butterflies and vagrant bees
Can whisper wind songs to the breeze.

Each wanton zephyr seems to knell
The soft sound of proud Yuccas' bell
While scudding clouds that pass her by
See Yucca holding up the sky.

OMNIPOTENCE

By LOIS ELDER ROY
Palm Desert, California

A busy friend came by this morn
While I was still in bed,
Just passing on her way to work.
"I brought you these," she simply said.

Within her hands, three roses
Plucked for me to share;
Reflecting all the loveliness of dawn.
So quiet there . . .

Long after she was gone
I lay and thought,
"How sweet this gift
My friend to me has brought!"

I'll write a poem!"
But my heart would not obey;
Above its throbbing
I could only think of God and pray.

Pink roses in a brown, thick jug
Their perfume wafting heavenward my
prayer.
"God," I whispered, looking out across the
sand-dune hills—
Is everywhere!"

DESERT BONANZA!

By GRACE PARSONS HARMON
Desert Hot Springs, California

These joys I have:
(You city folk take note!)
Miles, miles of crystal air;
Blue skies where white clouds float;
The sudden, brilliant springs—
When desert sings!

Life here is rich:
A meadow lark near by
Pours forth his haunting song.
What Diva's art can vie
With melody so true,
Age-old! Spring-new!

Each day, each hour,
The desert offers free
Some treasure, spread to greet
Those blest with eyes to see,
And ears attuned to hear
The silence clear!

JEWELLED HEART-WOOD

By GRACE R. BALLARD
Santa Barbara, California

I hold in my hand a cabochon—
Once, bit of a mighty tree,
That lived, maybe, a million years
Before the life of me.

It holds in eternal fastness
The warmth of sun and sea;
The glow of jewelled heart-wood,
Entombed in mystery.

What type of life was compatriot—
Who rested in its shade?
In this archive of stone, who knows
The sword of that accolade?

SANCTUARY

By GLADYS L. SAVAGE
Denver Colorado

This desert hacienda
Built of sun baked mud,
Resting on a corner stone
Mixed with sweat and blood,
Is a happy little home,
In spite of what it seems,
With buzzards soaring up above
And lizards on the beams.

There is laughter in this house
Evil spirits put to rout,
Because my gate is painted blue,
To keep the devil out.

TEN-GALLON HAT!

By LORNA BAKER
Los Angeles, California

They called him "the homeliest man in
town"
And brother, I must confess,
There wasn't a plainer guy around
When it came to looks and dress,
Until that night, by a Main Street store,
When he stood for the longest while
Then finally ambled through the door
With a real determined smile—
He spoke to a clerk, and then—yessiree—
He straightened that shiftless self
And pointed rather dramatically
To a big white hat on a shelf!

Soon he glanced in a mirror, his face aglow
And his eyes shone blue and clean
While he beckoned the clerk and said, real
low,
"Now I'll need new boots—and jeans—"

A few minutes passed, then, smilingly,
A stranger stood by my side
And proudly he whispered: "This is me—
But my beat-up ghost is inside!"

So, brother, whenever you're broken down
And part of you feels like dead
Just give up the ghost and strut through
town

With a Ten-Gallon Hat on your head!

Purpose

By TANYA SOUTH

There is purpose in our sorrow—
There is purpose in each tear
That we weep. For thus we borrow
Faith to overcome our fear,

Strength to lean on Higher Powers,
Love to kindle for the rest,
Truth to light our darkest hours,
And the Will to do our best.

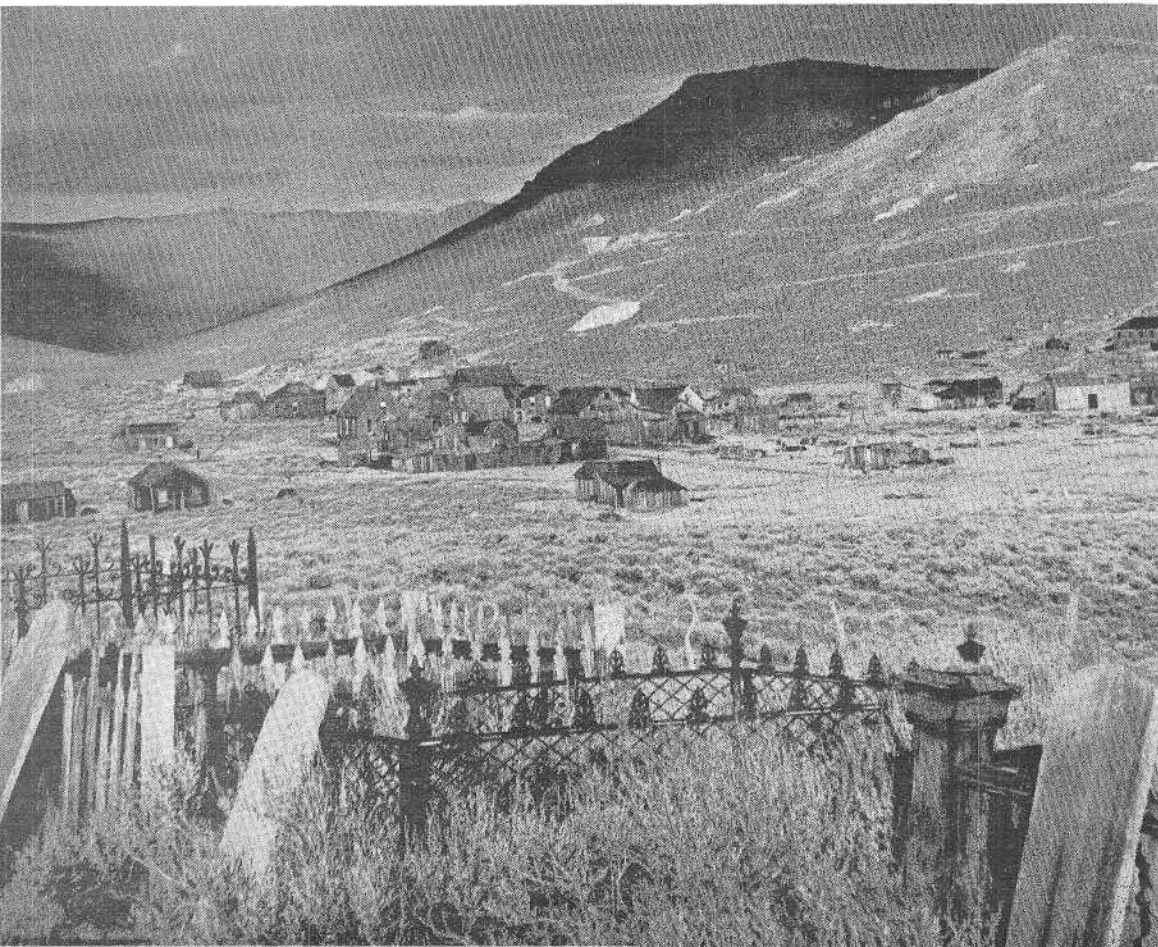
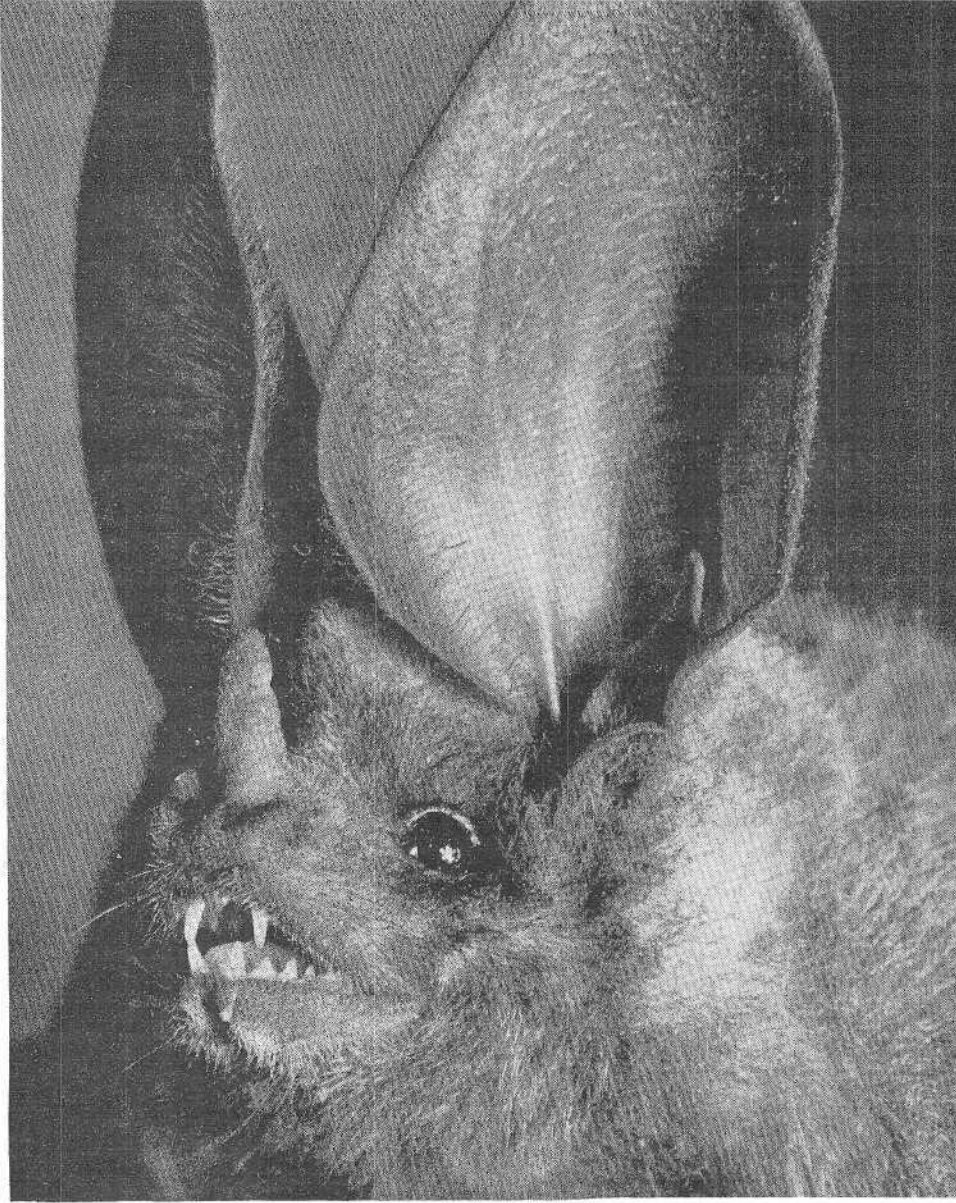
Bat Close-Up . . .

L. D. Schooler of Blythe, California, wins first prize with this close-up study of an insect-preying leather-winged bat. Camera data: $2\frac{1}{4} \times 3\frac{1}{4}$ Graphic camera; $1/10$ second at f. 11; panatomic X sheet film; with one No. 2 photo-flood lamp.

PICTURES OF THE MONTH

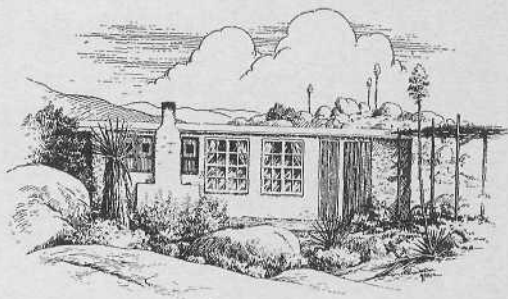
Bodie, California . . .

The early gold camp 9000 feet high in the Sierras near Mono Lake is the subject of the second prize winner this month. William Fettkether of Bishop, California, is the photographer. Bodie had a reputation for good drinking water, foul weather and bad men. Camera data: 4x5 Graphic View camera; 8-inch Ektar lens; $1/25$ th second at f. 45; Royal Pan film.



LIFE ON THE DESERT

How the Sun and a Tortoise Saved Little Denny's Life . . .



This is the story of a big lonely desert and a small lonely boy—and what each brought to the other. And Godiva, the boy's pet tortoise, played her part, too, for on her hard-shelled back the lad literally rode through the sun-filled days into a new life of health and happiness.

By HELENA RIDGWAY STONE

MANY YEARS ago in the days before miracle drugs and good desert roads, the parents of a sickly lad of five made a big decision: they would leave Los Angeles and their comfortable home and try to find a place in the desert where he would have a better chance to regain his health.

The doctors had been kind and sympathetic to Denny, but none seemed to think there was much that could be done for him. He had been given tonics and good food but he would spend most of his time lying on a couch, looking at books or drawing pictures with crayons while other children ran and played in the outdoors.

After making up their minds to seek out a warm dry climate for Denny, the parents spent many weekends looking for a suitable place. They drove to the desert with army cots tied to the top of their car and slept out under the stars. One day they found the property they had dreamed of.

It was on a plateau overlooking Lucerne Valley east of Victorville. The Granite Mountains threw their long purple shadows across the desert to the very point where Denny was to have his new home. And there were trees on this land from which a hammock could be strung. Here the little boy would be able to rest in the sunshine.

Time was becoming increasingly precious and Denny's parents turned their attention to getting a house built on their land. They stopped at a gasoline station to have their car serviced and casually mentioned to the attendant that they had to put a house on their property immediately. Guardian angels were at their side, for a young man overheard the conversation and told them of a couple who were leav-

ing the desert and had put their cabin up for sale.

In a matter of hours the house was purchased. Then it was hauled to the new site—a three room home furnished in wicker, with grass-green fiber rugs on the floor and gay curtains on the windows. And now Denny's new life began.

His father came every weekend to stay with his family. His arrival was a big moment for the child. Every week he brought Denny a gift—a new book or a toy—but one Friday he arrived with the finest present Denny had ever received. A tortoise! Not the coin-sized variety children play with today, but a huge fellow with a shell two feet in diameter.

Denny named his new pet "Godiva." When the boy was feeling better than usual, he would sit on the tortoise's back and slowly—so very slowly—Godiva crept around the house.

Denny's childhood was not a typical one, but it became a very happy one. After he made gains in health, he started his schooling with a visiting teacher who thought him a wonderful student. In the evenings his mother would light the oil lamps and help him with his lessons.

Seven years passed before Denny returned to Los Angeles, and then, on a bright desert-fresh morning, a tanned

lad of 12 stooped down to pat a great hard-shelled reptile as it lay sunning itself in the sand.

"Good-bye, Godiva," he said. "I'm going away for a while, but I'll be back as soon as I can."

Denny's parents watched as the strong straight boy walked to the car with his suitcase. "He gave the desert his faith, and it has given him back his life," Denny's mother said to her husband with tears of happiness in her eyes.

And Denny did return many times, and when he became an adult he went to live in the little green house in Lucerne Valley for a few months out of every year. His children love the desert home.

It seems tortoises live forever, and Godiva still resides on Denny's place, although she doesn't take as many tours around the house as she once did.

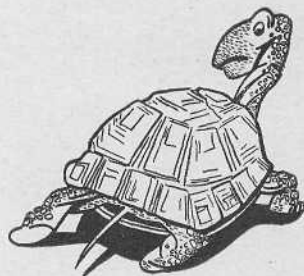
TOWNSITE FOR GLEN DAM TO BE BUILT IN ARIZONA

The United States Interior Department announced its decision to locate the Glen Canyon Dam townsite in Arizona on the southeast side of the Colorado River.

To be called Page, Arizona, in honor of the late John C. Page, federal reclamation commissioner from 1937 to 1943, the town is expected to reach a peak population of 12,000 during construction. Its permanent population probably will level off at about 2000 or 3000, the Department predicted.

The site, almost on the rim of the Colorado River gorge a half mile from the damsite, was ceded to the reclamation bureau by the Navajo Indian Tribe, which received in return a promise of congressional approval for an equal amount of land in Southern Utah.

The location will become directly accessible to Utah with completion of the bridge across Glen Canyon, expected in 1959.—*Phoenix Gazette*





*In May Boundary Peak (13,145 feet) in Nevada, sometimes affords snow climbing.
Photo by Niles Werner.*

Mountains Are For Everyone

This is a page for the mountaineering fraternity, and especially for those young people who would like to share in the exhilarating experience of camping and climbing where the air is clean and the beauty of the natural landscape undisturbed by man's enterprise.

By LOUISE TOP WERNER

Water . . . water!

Springs in the desert mountains are likely to be quite unpredictable. When you're climbing up a desert wash and your topographic map indicates a spring ahead, don't start drooling until you see the sand getting wet. You may have to dig for the precious fluid then wait while your basin fills and the water settles and clears. After that you may have to boil it for 20 minutes. If you're thirsty the final product will more than reward your patience.

Such was our experience March 9 during a climb with the Desert Peakers of the Sierra Club, a group that makes a hobby of exploring the desert mountain ranges of California. The topo map showing the trail across Martinez Pass in the Santa Rosa Mountains south of Palm Springs, indicated two springs, Cactus Spring and Agua Alta Spring. These two springs, like so many of the waterholes we read about in history, were once favorite gathering places for tribes on the march.

They furnished water for the early Cahuilla Indians on their regular food-gathering treks from their winter homes in the desert to their summer homes in the mountains.

We found both springs merely oozing mud puddles fouled by wild animals. We paused only briefly at Cactus Spring, happy to note that it had been given back to the wild animals. When we visited it three years ago we found that some cattleman had piped all the water into cattle tanks, making it inaccessible to the smaller wild animals.

That night we camped at Agua Alta Spring, about 4300 feet. The spring is hidden among bushes in an arroyo north of a pinyon-covered flat where Indian pottery shards still lie scattered about. Bees swarmed about the mud puddle. With a tin cup we dug a basin about a foot deep and wide. It filled slowly and took an hour to clear. We filtered the water through fine cheesecloth, and boiled it. We filled

our canteens and the next day noticed a rather pleasant smoked flavor.

Rabbit Peak Ascent

Twenty-six Desert Peakers on a recent ascent of Rabbit Peak (also in the Santa Rosa Mountains), found the spring on the north flank of that mountain flowing water. Not only was the spring active but in the middle of the night the whole sky became active, deluging the knapsack campers with three hard showers. Newcomers to Rabbit Peak are usually warned, "Carry plenty of water; Rabbit Peak is one of the driest climbs we schedule." Few of the climbers had carried shelter, and some of them knapsacked back to the cars for breakfast. The rest went to the top the next day in fine weather.

Sierra Club Scheduled Climb for May 18-19

Boundary Peak (elevation 13,145 feet) and Mount Montgomery (13,465), White Mountain Range. A knapsack trip. Guests are welcome!

The White Mountain Range rises along the central eastern border of California, its northern tip slipping over the line into Nevada. Its elevation is 14,242 feet.

Boundary Peak is the highest point in Nevada, while Mount Montgomery,

about half an airline mile to the south of it, lies in California. This trip offers the rare opportunity of crossing the border into California (at an elevation of about 12,800 feet) without a customs official asking you whether you're carrying any citrus fruit.

The approach is from the Nevada side, where the White Mountain range presents a much more impressive Alpine facade than it does from the Owens Valley in California, and most of the climbing will be in Nevada.

An ascent of these two peaks was described in the December, 1954, issue of *Desert Magazine*. Essentially the same terrain will be covered with several important differences:

(1) It's probable that in May there will be enough snow and possibly ice, to make an ice axe necessary for safety, especially while traversing the ridge between the two peaks. The leaders require that those who expect to complete the entire climb bring ice axes and wear rubber lug shoes.

(2) The last few miles of dirt road is being torn up for a pipeline; this may necessitate up to four miles of back-packing to base camp, which will be at the spot where the road formerly ended, in Trail Canyon.

(3) The water in Trail Canyon has been so badly fouled by wild horses, that each climber is requested to bring enough water for the entire trip (up to three quarts, depending on how liquid your food is and how successful you are at ignoring thirst).

Route: Highway 395 to Big Pine, California. East over Westgard Pass into Nevada, where road becomes 3A (blacktop) to highway maintenance station in Fish Lake Valley. Turn left on fair dirt road, about 10 miles, or as far as you can go. Watch for Sierra Club arrows.

The climb (without packs) will start at 5 a.m. Sunday, a 12-mile round-trip gaining about 4500 feet in elevation; class 2, no technical difficulties but rubber soles essential.

Warm clothing is recommended. A lightweight wool sweater or two worn under a hooded ski parka holds body heat and keeps out wind better than a coat three times as heavy and bulky. Most climbers prefer several thin layers so they can peel off as they warm up. A mummy-type down sleeping bag affords the knapsacker the most warmth per foot-pound.

Dehydrated foods are not weight-savers to the camper who has to carry water to cook them in. Canned foods are more popular, as are juicy raw foods like carrots, celery, cucumbers, apples and oranges.

This trip is conducted by the Sierra Peakers, many of whom also belong to the Desert Peaks Section. Leader is Don Clarke, 383 E. Washington St., Pasadena 6.

Strangers on these trips should make themselves known to the leader so they can be introduced and made to feel at home. Say you saw it in *Desert Magazine*.

LETTERS

Facts on Hole-in-the-Rock . . .

Salt Lake City

Desert:

The article "The Hole in the Rock," in the April *Desert* gave me a surprise or two. Having spent a great deal of time during the past half-dozen years digging out the facts regarding the famous Hole-in-the-Rock Expedition I feel qualified to make some corrections in the story. In the first place the Hole-in-the-Rock was the major wagon route from southern Utah settlements to the San Juan region for a whole year and many wagons were driven both ways over that road—yes, up through the Hole as well as down it, impossible as that may seem today to the casual visitor to the site.

Secondly, the first wagons were driven down through that notch on January 26, 1880, not February. Thirdly, most of the colonists of that expedition came from Iron County: Parowan, Cedar City, Paragonah, New Harmony, etc., although a few were from Panguitch and two men were from Kanab; there was no one from Henrieville.

Fourthly, the "Mormon Steps" were not cut by the original company of pioneers who were building a wagon road, not a staircase. The steps were cut approximately 20 years later by miners and an outfit that was operating an Indian trading post at the base of the Hole. The steps were to enable men to carry goods from the canyon rim at the head of the hole to the trading post below, and back up again.

I realize that some of the ideas contained in this article are quite commonly believed by some people; but they are not based on fact—they are just not true. I have written numerous short articles on the Hole-in-the-Rock trek and now have a book completed—to be published during the present year.

DAVID E. MILLER
Professor of History
University of Utah

Lost Pegleg Gold Exists . . .

Willits, California

Desert:

I should like to answer the question raised by the late James A. Jasper in the March, 1957, *Desert*: was "Pegleg's Mine—Fact or Fable?" Jasper claims "Fable." I claim "Fact." The author, like so many others, evidently did not know that there were two Pegleg Smiths, and two mines.

Hard Rock Shorty of Death Valley



"Don't it ever rain here?" asked the tourist, who was waiting in the shade of the Inferno store while Death Valley's roustabout mechanic put a patch on one of the tires.

Hard Rock Shorty edged his chair over a few inches to get more directly in the breeze that came from a squeaky fan. When he was comfortably settled in his new location he glanced up at the newcomer.

"Yep!" he said. "Three years ago last August it rained so hard some o' the lizards began to grow webs on their toes. An' one o' them ducks Pigsaw Bill keeps in the pen with his chickens drowned 'cause it'd never learned to swim."

"Look'd as if we'd have another rain a couple months ago. Them black clouds came up over the Panamints. About that time Ol' Pigsaw came outa his shack and took a squint at the sky. 'Looks as if I'm gonna git another bath,' he yelled. 'Ain't had one since that last rain three years ago.'

"Then he went back inside and used what water was left in the barrel soapin' himself up ready fer a good shower."

"But do yu know what happened? Them clouds busted up without spillin' a drop o' water. An' Bill had to walk 15 miles to the spring up in Eight Ball crick to wash the soap offen hisself."

First he has Pegleg's name wrong. Thomas L. Smith had a mine East of the Chocolate Mountains, a real mine, either a tunnel in the side of a mountain or a shaft, but in any event he was underground. This story was published, some years ago, in the *Los Angeles Times*, written by Joe Chisholm. The man who found gold nuggets, not rich quartz, on the top of a hill was John O. Smith.

Furthermore, he was not a brother of Jedediah Strong Smith. I got this from a man who, some years ago, had thoroughly investigated Jedediah with the view of writing a book on his life and journeys in California. He told me "neither of the Pegleg Smiths were related to Jedediah."

Jasper's facts concerning the amputation of his leg and his being a heavy drinker are correct. The "prominent Riverside resident named Couver" (actually spelled "Cover" but pronounced "Couver") only made one trip to the desert to search for the Pegleg Gold. His partner was Wilson Russell. In 1902 I interviewed Mrs. Tom Cover and Russell. The latter told me, in answer to my question—"Did he and Cover thoroughly believe in the existence of the Pegleg gold when they left Riverside to look for it?"—that Tom Cover had in his possession a nugget from the Pegleg Mine, and a map of its location when they made their journey to the desert.

Pegleg did not make the trip from Yuma to Los Angeles, on which he found the gold, in 1836 but in the early '50s, and he did not have a party with him, but was alone.

I have been convinced that the Pegleg story is true for 57 years and there will have to be more evidence than Jasper presented to make me change my conviction. H. E. W. WILSON

Jasper Right About Pegleg . . .

Del Rosa, California

Desert:

James A. Jasper's story of Pegleg Smith in the March, 1957, *Desert* sounds like a sober reflection to me. Personally, I wouldn't go across the road to look for a lost mine—even if someone said there was a mine over there. For one thing, a more accurate description of supposedly lost discoveries, such as "lost pockets" or "lost lenses" often are lacking. And lost mines such as Scotty's Death Valley gold may never have been found in the first place.

In the same issue Nell Murbarger tells the story of the Nevada prospector Ed Smith and it seems somewhat of a mistake to me for you to give directions to the homes of solitary desert dwellers such as Smith. Considering the way people get around these days, there is a chance that marauders will

plunder the camp, or perhaps the mischief will be limited to breaking glass and shooting holes in cans and other objects about the place.

H. GRAHAM

L.A. Up to Old Tricks . . .

Blythe, California

Desert:

Here we are trying to keep our desert beautiful when dear old Los

Desert Quiz

The more you know about the desert—its flora and fauna, its history, geography, life and lore—the better you will like this vast arid land. The Desert Quiz is published not only to test your knowledge of this region, but as a source of new information. These are not catch questions. Rather, they are taken from the great store of common knowledge of this region. Twelve to 15 is a fair score, 16 to 18 is good, a higher score is exceptional. The answers are on page 33.

- 1—Blossom of the ocotillo is—Red..... White..... Blue..... Lavender.....
- 2—The Hopi Snake dance is a prayer for—Abundant game..... Protection from snakes..... Rain..... Peace with neighboring tribesmen.....
- 3—The name Peralta is associated with—The Lost Dutchman mine in the Superstition Mountains in Arizona..... The discovery of silver at Tombstone..... Reclamation of the Imperial Valley..... Exploration of Grand Canyon.....
- 4—The officer who led the Mormon Battalion to California in 1846-47 was—Lieut. Emory..... Philip St. George Cooke..... Brigham Young..... John Poston.....
- 5—The Colorado River has no shoreline in one of the following states—California..... New Mexico..... Arizona..... Utah.....
- 6—When winter rains bring abundant flowers to the desert, the most common species seen on the sand dunes is — Desert lily..... Encelia..... Verbena..... Poppies.....
- 7—Before the basin was submerged in 1905-6-7 the floor of the present Salton sea yielded large quantities of—Borax..... Salt..... Pumice stone..... Gypsum.....
- 8—The term "Desert varnish" refers to—A gum that oozes from the stems of a creosote bush..... The silky sheen of the petals of cactus blossoms..... Lime deposited on rocks by mineralized water..... An organic coating that covers desert rocks over a wide area.....
- 9—Mescalero is the name of a tribe of — Navajo Indians..... Yumas..... Apaches..... Hopis.....
- 10—The Kaibab plateau is—On the north rim of Grand Canyon..... West of Cedar City, Utah..... Overlooks the Rio Grande..... Home of the Hopi Indians.....
- 11—The fowl often referred to as the "Cuckoo Bird" is a—Swallow..... Roadrunner..... Quail..... Woodpecker.....
- 12—The Dons Club, dedicated to preserving the lore and traditions of the Southwest, is located at — Albuquerque..... Phoenix..... Jerome..... Nogales.....
- 13—Filifera is the species name of a desert—Cactus..... Yucca..... Lizard..... Native palm.....
- 14—The Gila River flows westward into—Salton Sea..... Death Valley Sink..... Green River..... Colorado River.....
- 15—Driving from Albuquerque to Taos, New Mexico, by the shortest paved route, the largest city you would pass through is — Santa Fe..... Gallup..... Carlsbad..... Tucumcari.....
- 16—Most conspicuous mountains seen from Flagstaff, Arizona are—The Catalinas..... The Wasatch range..... The San Francisco peaks..... La Sal Mountains.....
- 17—Utah is the name of an Indian reservation in—Utah..... New Mexico..... Arizona..... Nevada.....
- 18—Closest important town to the Petrified Forest National Monument is — Winslow..... Holbrook..... Springerville..... Farmington.....
- 19—The book, *Wonders of the Colorado Desert*, was written by—Carl Eytel..... George Wharton James..... James Smeaton Chase..... John C. Van Dyke.....
- 20—Butterfield is the name of—A stage line that crossed the Southwestern desert 100 years ago..... Discoverer of silver at Tombstone..... First governor of Arizona..... The man who captured Geronimo.....

Angeles, with her growing pains, not only wants to steal all of Arizona's water, but again is proposing to dump the rubbish of 4,000,000 people out here along with her smog and smoke. Next in line is the baling of sewage in order to keep her beaches clean—and then trying to ship it to the desert.

JACK E. MARLOWE

• • •

Sun Turns Glass Quickly . . .

Twentynine Palms, California Desert:

It is a common belief on the desert that it takes from three to five years of exposure in the bright sunlight for old glass to take on faint tinges of color.

Last year I moved to the high desert and my neighbor showed me pieces of glass that had started to turn color after only two years of exposure. They were lying in partial shade and had not received the full benefit of the sun's rays during this period.

I placed several pieces of "old glass" in my backyard in mid-August. Within three of four days several pieces had become opaque with a hint of orchid coloration. In two weeks they had a very definite cast.

After this amazing start, I took down a trunk in which I had stored a few antique pressed glass and cut glass pieces and placed them in my sun glass garden. This was in early October when the sun's rays were no longer so direct and the days were becoming shorter. But despite this, several pieces began turning within a few weeks.

Next I put my wine bottle collection—some of pressed glass and all beautifully shaped—in the glass garden which is so located as to receive sunlight from dawn to dusk. Along with these I put a number of clear glass pieces that were dull and uninteresting. Some hobnail pieces have taken on an opalescent cast; a beautifully shaped etched yellow glass has acquired a golden sparkle and other yellow pieces, evidently seconds, are showing a red-ish-purple.

I have noticed one thing regarding those pieces that turn slowly—in a few days it is possible to tell what coloring the sun is going to bring out. All old glass does not turn blue or purple, of course. Orchid, golden yellow and amber are common colors and I have one bottle that seems to be taking on a greenish cast.

This is a wonderful hobby—especially when you remember that it doesn't take years or even months for results.

MRS. RUTH ROWAN

Below Average Rainfall Lowers Forecasts for River Runoff . . .

Most areas of the Southwest received below average precipitation during the month of February, resulting in a general lowering of the estimated stream runoff for this water year (November, 1956, to June, 1957), the U. S. Weather Bureau said.

The Colorado River Basin above Glenwood Springs, Colorado, had near normal precipitation but the rainfall was somewhat spotty and some stations reported amounts much below normal. Over the upper Gunnison Basin above normal precipitation was received, while the watersheds of the Uncompahgre and Dolores rivers had less than normal.

Streamflow for most of the Colorado above Cisco, Utah, is expected to be near the 1938-52 average. Only in the Uncompahgre (77 percent) and Dolores (74 percent) river basins is the runoff expected to be much below average. Runoff of the Colorado at Cisco during February was near average, and the March through September flow is forecast to be 4,500,000 acre-feet or 95 percent of average.

Rainfall over the Green River basin averaged about 50 percent of normal, but slightly above normal amounts fell over the upper Yampa and White River watersheds. Stream flow near the 15-year average is forecast for the upper Yampa and White rivers, and runoff for most of the upper Green in Wyoming and the Utah tributaries is forecast to be from about 75 to 85 percent of average.

Precipitation over the San Juan Basin, averaging only 75 percent of normal, was in sharp contrast to the January precipitation when monthly amounts ranged as high as 450 percent of normal. Streamflow forecasts vary from 105 percent of the 1938-52 average at Rosa, New Mexico, to 93 percent of average downstream near Bluff, Utah.

February precipitation over the Lower Colorado Basin was much below normal. February was also one of the warmest Februarys on record, and on March 1, no snow was reported below 8500 feet. Runoff during the month was very high in the Salt and Verde Basins. The water-supply outlook for the Little Colorado River at Woodruff, Arizona, is for an expected November to June streamflow of 74 percent of average. Near 120 percent

of average is forecast for the creeks near Winslow.

The outlook for November to June streamflow in the upper Gila Basin is poor with streamflow expected to be near 30 percent of the 1938-52 average if precipitation for the remainder of the season is near normal. Outlook for the Verde and Salt Basins is much more favorable because of the high precipitation during January.

These are waterflow predictions for the Rio Grande Basin where rainfall varied from about 80 percent to 100 percent of normal: Upper Rio Grande at Del Norte, Colorado, 90 percent; Rio Chama inflow to El Vado Reservoir, and Rio Grande tributaries in Colorado along the San Juan Mountains, near normal; Rio Grande at Otowi Bridge, New Mexico, 76 percent; Pecos River inflow to Alamogordo Reservoir, 60 percent.

The story was much the same for the Great Basin where February rainfall over the higher watersheds of the Wasatch Range was from 70 percent to near 90 percent of normal, and over the lower valleys of Salt Lake and Utah Lake less than 65 percent of normal. The Ogden and Logan areas reported near normal amounts. Streamflow forecasts are: Bear and Logan, 90 percent of the 1938-52 average; Upper Weber River, 90 percent; Lower Weber River, 75 percent; Provo River, 94 percent; Inflow to Utah Lake, 88 percent.

Except for the San Pitch River drainage area in the northern part of the Sevier Basin, precipitation during February was much below normal over this drouth-stricken area. Forecasts for the basins are: Sevier, 55 to 65 percent if precipitation for the rest of the season is near normal; Beaver River, 65 percent.

Outlook for the Humboldt Basin is poor with less than half the 15-year average anticipated. February precipitation over the Truckee and Carson River basins was near normal, while it was below normal over the Walker and Owens River basins. About 70 percent of average water-year streamflow is expected for the Carson and Walker rivers, with runoff of the Owens River near Bishop, California, expected to be near 80 percent of normal. The water-supply outlook of the Mojave Basin is poor—between 33 and 51 percent of average.

Here and There on the Desert

ARIZONA

Way Clear for Paper Mill . . .

SNOWFLAKE — Sale of 30-year timber pulpwood cutting rights in northeastern Arizona by the U. S. Forest Service has opened the way for construction of a pulp and paper mill near Snowflake by Southwest Lumber Mills, Inc., the buyer. More than 6,000,000 cords of timber are available to Southwest on its bid of \$1.10 a cord on approximately 1,600,000 acres on Kaibab, Coconino, Sitgreaves, Apache and Tonto national forests in Arizona and Cibola, near Grants, New Mexico. Southwest must construct a pulp mill by March 1, 1962, as a condition of the contract. It would have a minimum 200-ton daily capacity.—*Phoenix Gazette*

Taxable Land Acreage . . .

PHOENIX—Less than 16 percent of Arizona's land area is potentially taxable property, the State Department of Mineral Resources disclosed. Of the state's 72,688,000 acres, the Federal government owns 51,550,000 acres. This figure includes 19,410,000 acres of Indian Reservation or trust land. The state itself owns slightly less than 10,000,000 acres, or 13.67 percent of the land area, leaving only 11,200,000 or 15.41 percent in the form of potential taxable property. The state has the largest percentage of unsurveyed lands in the nation—32.64 percent or 23,726,169 acres.—*Phoenix Gazette*

Restoration Funds Given . . .

TOMBSTONE — The city's 180 restoration members contributed \$3428 of the \$4242 county total during 1956, and from mid-1955 to the end of January of this year, members had brought in a total of \$7738. These funds will be used to restore and convert the historic county courthouse into a museum.—*Tombstone Epitaph*

Navajos Outline Program . . .

WINDOW ROCK — A \$9,000,000 long range development program for the vast Navajo Indian Reservation was approved by the Tribal Council.

Most of the money is earmarked for schools, water development and tribal welfare. Set aside as a scholarship fund was \$5,000,000, but the council decided to postpone appropriation of the money until an agency—such as the U. S. Treasury or a private investment firm—is named to administer it. The extensive program will be financed by the Navajos' income from oil and gas leases which amounted to \$33,000,000. Other revenue comes from uranium, coal and forest products. Tribal leaders also appropriated \$20,000 for the reservation's first television station, tentatively planned for the Window Rock-Fort Defiance area.—*Phoenix Gazette*

CALIFORNIA

Boat Basin for Salton Park . . .

MECCA—A \$63,890 contract has been awarded for construction of a boat basin at the Salton Sea State Park. Plans call for parking facilities for 50 cars, a concrete boat launching ramp and a gravelled roadway. Future plans include additional camping and picnicking areas in addition to those already in the park. Parking facilities will eventually be expanded to provide for an additional 150 cars and the three-acre boat basin and entrance channel will have a depth of about 10 feet. This will include a graded beach on the east side of the basin. The entrance channel will be 40 feet wide and 300 feet long.—*Banning Record*

Legislature Kills Dove Bill . . .

SACRAMENTO—A legislative bill which would have outlawed dove hunting in California was killed when it was referred to an interim committee after three hours of spirited debate. Proponents of the measure sought to place the doves on the protected song bird list, maintaining that they ate detrimental weeds. Senator William Beard of El Centro, who opposed the bill, said Imperial County farmers had in-

formed him that doves eat as many cantaloupe seeds as they do weeds.—*Calexico Chronicle*

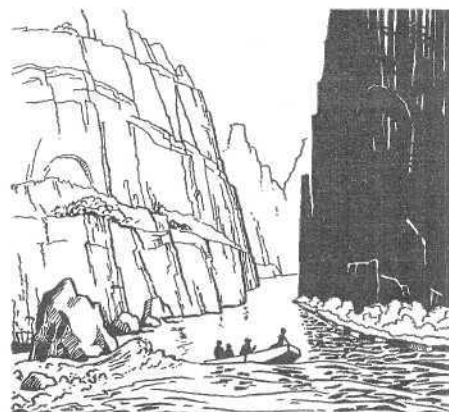
Permanent Dam Completion Nears

BLYTHE—Palo Verde Valley's 80-year struggle against the frequently treacherous Colorado River is nearing an end as work on the \$4,677,000 permanent diversion dam 11 miles northeast of Blythe was at the half-way mark. Workmen expect to finish the entire project, including canal modification on the California side and levees on the Arizona side, early next year. Total cost is expected to exceed \$7,000,000. Upon the completion of the dam, the temporary rock weir built with the help of the federal government in 1945 will be demolished. This weir was built to offset the drop in the river level as the result of the construction of Hoover, Parker and other dams on the Colorado.—*Palo Verde Valley Times*

Recreational Facilities Urged . . .

WASHINGTON, D. C. — Senator Thomas H. Kuchel of California, citing growing pressure on the Nation's natural resources, has suggested to Federal officials the time may have come to tighten laws covering the utilization

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IROQUOIS MASK \$25.00; pipe-tomahawk \$27.50; catlinite peace-pipe \$12.50; 5 arrowheads \$1.00; strand trade beads, \$1.00. Iron pointed African spear with shaft \$7.50. Paul Summers, Canyon, Texas.

SELLING 100,000 Indian relics. 100 nice ancient arrowheads \$25.00. Small grooved stone tomahawk \$2.00. Large grooved stone tomahawk \$3.00. Perfect spearhead over 8 inches long \$20.00. Flint scalping knife \$1.00. Indian skull \$25.00. Ancient water bottle from grave \$7.00. List free. Lear's. Glenwood, Arkansas.

FINE RESERVATION-MADE Navajo and Zuni jewelry. Old pawn. Hundreds of fine old baskets, moderately priced, in excellent condition. Navajo rugs, old and new, Bayeta, native dyes, Two Gray Hills. Artifacts and gems. A collector's paradise! Open daily 10 to 5:30, closed Mondays, Buffalo Trading Post, Highway 18, Apple Valley, California.

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MAPS

SECTIONIZED COUNTY maps — San Bernardino \$1; Riverside \$1; Imperial 50c; San Diego 50c; Inyo 75c; other California counties \$1.25 each. Nevada counties \$1 each. Topographic maps of all mapped areas. Westwide Maps Co., 114 W. Third St., Los Angeles, California.

TREASURE MAP 17x22 shows the location of 50 of the most famous Lost Mines and Treasures of the west. Printed in gay colors. Portrays the romance of the Old West. Ideal for hanging in game room or den. In addition you get the history of how each of the 50 were found and lost. Data and clues to their location. The result of 9 years of prospecting and research by the author. Send \$1.50 to Prospector Milt, 3915 Lamont, San Diego 9, California.

REAL ESTATE

PRIMITIVE RANCH for sale, Yaak, Montana. 320 acres, commercial timber, trout river. Eight log buildings. Elk, moose, deer, grizzlies, bobcats. Pack trails, ideal for Dude Ranch. Hay—96 to 100 tons per season. Write V. Magnant, 9325 N. 7th St., Sunnyslope, Arizona.

NEAR ANZA, house, barn, well, \$3300. 40 acres or less, \$300 an acre. 971 Barbour, Banning, California.

GOVERNMENT LAND for sale, five acres, cabin 16x18, new well, plenty of water. Highway 91 near Yermo, California. Mrs. Myrl Harris, Box 512, Barstow, Calif.

CHOICE HOMESITES and acreage. Salton Sea vicinity. Low as \$1495, \$95 down, \$25 month. Pon & Co., Box 546 DA, Azusa, California.

NICE SHADY oasis planted to grapefruit, tangerines. Good house, swimming pool. 33 acres, Coachella Valley. \$85,000. Ronald L. Johnson, broker, Box 162, Thermal, California.

MISCELLANEOUS

BOLO TIE, set with your favorite snapshot or initials in gold. \$2.98. Swigert's, 2218 Louella, Venice, California.

JERUSALEM, HOLY-LAND; also Vatican City, Rome, Italy; beautiful viewcards 15c each or 10 for \$1.00. S. Laurie, 915 East Adams, Tucson, Arizona.

PAN GOLD: \$1 for 75 panning areas in 25 California counties. Geological formations, elevations, pertinent notes. Panning pans \$2.75, \$2.25. Leather nugget and dust poke \$1. Fred Mark, Box 801, Ojai, California.

GHOST TOWN ITEMS: Sun-colored glass, amethyst to royal purple; ghost railroads materials, tickets; limited odd items from camps of the '60s. Write your interest—Box 64-D, Smith, Nevada.

LOST MINES, buried treasure, uranium or water—we can help locate from a distance of 20 miles to 5000 foot depth. The Geotest Company, 1833 Marney Avenue, Los Angeles 32, California.

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and disposal of Federally-owned land. With the steady growth of population and increase in travel and outdoor activities, there is serious danger that future generations of Americans will lack scenic, educational and inspirational features for recreation, Kuchel said in letters to the secretaries of Agriculture and Interior.—*Inyo Register*

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River Case in Recess . . .

SAN FRANCISCO—Recessed until May 6 while special master Simon H. Rifkind recovers from a collapse is the trial of the Colorado River water case involving the long-standing California and Arizona dispute over the water. Before ordering the recess, Rifkind ruled that California could introduce evidence aimed at upholding the principle of "prior rights." Arizona has contended this evidence was irrelevant.—*Nevada State Journal*

• • •

NEVADA

Wilderness Area for Jarbidge . . .

JARBIDGE—Part of the Humboldt National Forest near Jarbidge may be established as a wilderness area, the U. S. Forest Service announced. At

present there are no Nevada areas so designated. The 68,827 acres covered by the proposal include the beautiful Jarbidge Mountains and the headwaters of Mary's and Jarbidge rivers. Eight mountain peaks with elevations of 10,000 feet or over are included in the area.—*Pioche Record*

Wild Horse Controversy Brews . . .

CARSON CITY—Calling for more humane methods in the rounding up of wild horses in Nevada, directors of the Washoe Horsemen's Association and the Nevada State Horsemen's Association voted against the passage in the legislature of a bill concerning the trapping of mustangs. In essence, the bill would permit hunting of wild horses by aircraft. A Sacramento, California, newspaper reported that its article concerning the rounding up of wild horses in Nevada, has caused a flood of reader comment and residents of Applegate, California, have protested the "slaughter of wild mustangs in Nevada by the pet food companies." The State maintains that under present laws, the county issues permits to hunt horses, not the State.—*Nevada State Journal*

Historic Roundhouse Razed . . .

SPARKS — Wrecking crews began razing one of the best known landmarks in Sparks—the Southern Pacific roundhouse. The historic structure once was a main repair and service shop for steam locomotives in the SP system, but shop service was discontinued last year when the company began replacing its steam engines with diesel. The roundhouse operation was moved from Wadsworth to Sparks in 1904.—*Nevada State Journal*

Special Stamp, Coin Asked . . .

CARSON CITY—Another attempt to have the Federal government issue a special postal stamp and silver half dollar to commemorate the centennial of the discovery of the Comstock Lode was reflected in state senate resolutions. A major celebration is planned in 1959 by the state on the 100th anniversary of the beginning of digging in Gold Hill and the discovery of silver in Virginia City by Henry P. T. Comstock.—*Nevada State Journal*

Public Lands Open for Filing . . .

RENO—Opening of 48,220 acres of reconveyed public land for filing was announced this week by E. R. Greenlet, state supervisor of the Bureau of Land Management at Reno. These lands will not be open to mining location or mineral leasing as the former owners have retained the mineral rights. Applications will not be accepted until notice is published in the

Federal Register and the lands are not subject to disposal until classified. The lands were formerly livestock trail lands known as the Fernley Trail, Lovelock Trail, Imlay Trail, Golconda Trail, Battle Mountain Trail and Wells Trail and in general are barren lands not conducive to agriculture. Inquiries should be made of the Manager of the Land Office, P. O. Box 1551, Reno.—*Reese River Reveille*

NEW MEXICO

Villa Raid Monument Proposed . . .

COLUMBUS — Residents of this southwestern New Mexico border town are discussing the possibility of erecting a monument to commemorate the Pancho Villa raid and the eight civilians and nine U. S. soldiers killed by the Mexican revolutionary leader's troops. Columbus, population 300, does not have even a highway historical marker to indicate the raid which occurred early in the morning of March 9, 1916, and precipitated the expedition into Mexico led by General John J. Pershing. The monument would also commemorate the first invasion of the United States by a foreign power since the War of 1812, and also mark the place where Army aviation received its baptism of service, for planes took off from a crude strip at Columbus to support elements of the Pershing expedition.—*Las Cruces Citizen*

Ft. Burgwin Restoration . . .

TAOS — An endowment provided by the Wichita Foundation of Wichita, Kansas, will make it possible for the restoration and reconstruction over a 10-year period of Fort Burgwin in the Pot Creek area south of Taos. Plans call for the complete restoration of the old fort, erection of a small historical museum on the site and the recreation of some old Indian works in the neighborhood. The fort was established following the 1848 Indian uprisings. The cavalry post existed from 1852 to 1860.—*El Crepusculo*

Route Beautification Is Goal . . .

HOUSTON, Texas—The Old Spanish Trail Highway Association announced plans for making the nearly 2500 miles of highway from Jacksonville, Florida, to San Diego, California, the most beautiful highway in the world. Each area and state along the route will be invited to participate in the planting of roadside trees, shrubs and flowers of all kinds. The planting of memorial groves of trees, each honoring the pioneers and builders of the individual areas, will be stressed, together with plaques commemorating points of historic interest along Highway 90 and affiliated routes. — *Las Cruces Citizen*

Danger to Water Supply Seen . . .

SANTA FE — An official of the U. S. Geological Survey warned residents of the High Plains of Texas and New Mexico that they face serious water shortages if well-drilling is allowed to further lower the water table. Increased well-drilling in this area is draining an underground supply which won't be replaced for centuries, said Albert Fiedler, assistant chief of the USGS's ground water supply branch. The Roswell basin of New Mexico also faces a real problem in this regard.—*New Mexican*

UTAH

Ute Indians Win Land Case . . .

SALT LAKE CITY — The Indian Claims Commission decided that the Uintah Ute Indians of Utah are entitled to payment for approximately 7,000,000 acres of land taken from them by the white man in the 1860s. In two cases pending since 1949, interlocutory decisions rendered unanimously by the Commission favor the Utah Indians, holding that they were owners of the land until it was taken by the United States for its own use or disposition to others under public land laws or given by the United States to

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a Colorado Ute Indian band. In further trials, the exact acreage of the land will be detailed and the amount of compensation the United States must pay will be decided. Values will be established as of the date the land was taken from the Indians.—*Vernal Express*

Land for Dam Requested . . .

KANAB—The Department of the Interior has issued a withdrawal notice on 73,600 acres of San Juan County land which it proposes to trade to the Navajo Indians for tribal lands at the Glen Canyon Dam site just below the Utah-Arizona border. Congress must approve the trade. — *Southern Utah News*

Paiute Bands Given Autonomy . . .

SALT LAKE CITY—Four small bands of Paiute Indians in Utah, comprising 232 members, will take over full responsibility for management of their own affairs, the Interior Department said. The bands affected are Shivwits with 130 enrolled members and 27,520 acres of tribal property; Kanosh, 42 members and about 6000 acres; Koosharem, 34 members and 440 acres; and Indian Peaks, 26 members and approximately 9000 acres. In addition to the tribal holdings, individual members of the Kanosh band own a total of 1840 acres and members of the Koosharem group 240 acres which have been up to now in Federal trusteeship.

Alien Herders to Enter U. S. . . .

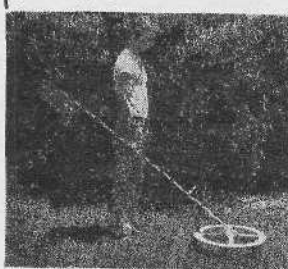
WASHINGTON, D. C.—The Immigration Service will allow the entry of 200 alien sheepherders as temporary agricultural workers for three-year stays on a rotating basis. Officials say this will provide an assured supply of experienced herders who can be utilized to meet a recurring employment problem in our domestic wool industry.

Recognition Due Historic Site . . .

PROMONTORY—The Golden Spike Monument at Promontory may soon be made a National Historical Site, according to Conrad Wirth, director of the National Park Service.

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MINES and MINING

McGill, Nevada . . .

Work force reductions in Kennecott Copper Corporation's Nevada Mines Division and other mining operations in Nevada were announced. At mid-March approximately 150 people had been released by Kennecott at both Ruth and McGill. Recent drops in the price of copper together with market demand fluctuations were blamed for the work force curtailment. A total of 25 miners were laid off work at Getchell mine due to the cutback on federal subsidies under the minerals purchasing program. It was reported that additional layoffs were expected there. Nevada Scheelite mine and mill southeast of Fallon reduced its crew to 10 men for necessary maintenance and cleanup work for the same reason given by Getchell. Scheelite was operating with a force of 150 men last fall when a reduction to 60 took place. The Kaiser fluorspar mine near Broken Hills was closed by ore depletion.

Washington, D. C. . . .

The Interior Department has revised its regulations governing mineral leasing of Indian land in order to stimulate wider competitive bidding and more active development. The new regulations provide that the maximum area that may be covered by a single lease for development of minerals excluding coal, is 2560 acres. The new regulations also provide that no limit be set on the amount of Indian land an individual lessee may hold under more than one lease in a particular state. The old regulations limited the holdings of an individual lessee in a single state from 640 to 960 acres for all minerals except coal, oil and gas. The coal limit under the old regulations was 10,240 acres.—*Salt Lake Tribune*

Lucerne Valley, California

C. M. & H. Mining Company of Tooele, Utah, has begun operations at the old Bessemer Iron Mine, about 31 miles east of Lucerne Valley. An estimated 200 tons of ore will be trucked daily to a loading ramp at Permanente Cement Plant. It was expected that the ore, graded at over 60 percent iron, ultimately would be shipped to Kaiser Steel Mills at Fontana. — *Victor Press*

Bagdad, Arizona . . .

Wah Chang Mining Corporation is conducting development and exploration work at Copper King Mine near Bagdad. The mine has a production record of about \$2,000,000 in copper and zinc. Its shaft has been retimbered to the 600 foot level and some cross-cutting and drifting completed.—*Pioche Record*

Magna, Utah . . .

Utah Copper Division of Kennecott Copper Corporation has scheduled construction of a \$16,000,000, 75,000 kilowatt power plant addition to its central generating facilities at Magna. Completion of installation of generating equipment should come within two-and-a-half to three years, it was estimated. Both natural gas and coal will be burned under the boilers and the new plant will employ the revolutionary "reheat" cycle which effects economies in fuel consumption. Another \$2,000,000 in expansion projects also was announced by the firm which brings the 1957 project totals to \$18,000,000, excluding \$12,000,000 to be spent during the next two years for a new ore haulage tunnel from the bottom of the Bingham pit to the Copperton assembly yard.—*Salt Lake Tribune*

Sulphur, Nevada . . .

Open pit mining processing and shipment of native sulphur for agricultural purposes is underway at Sulphur, 60 miles north of Lovelock on the Western Pacific Railroad. Expansion and improvement plans for the operation were announced by mine officials. At the present time, five men were working the mine, removing 35 tons of sulphur ore daily. The expansion plans call for the erection of a plant to convert the ore to pure sulphur. Daily treatment of 150 to 200 tons of ore are expected to yield 100 tons of pure elemental sulphur in the future. —*Lovelock Review-Miner*

Virginia City, Nevada . . .

Geology of the Virginia City quadrangle has been printed in book form and is now on sale. Geologic mapping of the Virginia City and the Mount Rose quadrangle by the Geological Survey, Department of the Interior, was done in the field and completed in 1952. Area covered is 230 square miles. The book is on sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., in paper-cover form for 65c. It is listed as Survey Bulletin 1042-C.

Aneth, Utah . . .

The Texas Co. completed two wells in mid-February, one of them the largest producer yet in the Aneth field. The two wells totaled an initial potential flow of 4622 barrels of oil daily. With the completion of these two wells, Texas Co. completed 18 of its 23 drilling operations for a total initial potential flow of 19,346 barrels of oil per day. Five of the wells have been plugged, but one will be re-worked. — *Pioche Record*

The California State Mine Board will hold an open meeting at Bridgeport on June 21 for the benefit of mining interests in Alpine, Inyo and Mono counties.—*Inyo Independent*

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Wells, Nevada . . .

Sale of seven barite claims on Dry Creek, 50 miles north of Wells, to the American Colloid Company of Chicago, was announced by the partner-owners of the claims, Mr. and Mrs. Herb Butler of Dry Creek Ranch and Mr. and Mrs. Martin Saunders of Elko. The property, known as the Jungo claims, brought its locators \$35,000. — *Nevada State Journal*

Denver, Colorado . . .

Captain A. B. Miller reported that the U.S. Navy feels the oil shale lying along the flanks of the Rocky Mountains may prove a potent source of fuel for jet aircraft. Miller, director of the Navy's petroleum and oil shale reserves, voiced the hope that Congress would allow funds to reopen the oil shale research plant at Rifle, Colorado, for jet fuel tests. The U.S. Bureau of Mines spent \$14,000,000 in research at the now-idle plant.—*Phoenix Gazette*

Holbrook, Arizona . . .

An oil and gas leasing boom erupted in land in Navajo and Apache counties between boundaries of the Sitgreaves National Forest and the Navajo Indian reservation, following unconfirmed rumors that Standard Oil Co. of California was about to drill test wells in the Dry Lake vicinity west of Snowflake. Oil continued to make big news in the Paradox Basin where Pan American Oil Corporation, Davis Oil Company, Gulf Oil Corporation and other concerns have made significant new discoveries. A drilling boom is predicted during the summer by oilmen, primarily caused by the construction of the 50,000 barrel-a-day crude oil line from the Four Corner's Region to Los Angeles, started in March. Exploration as well as development work is expected to rise.

Miners Delivering Ore to Mexican Hat Buying Station

Producing mines in the Monument Valley, Oljato and Mexican Hat areas are now delivering ore to the newly completed Texas-Zinc crusher and sampling plant at the Mexican Hat site.

All ore is being purchased under the AEC Circular 5 system. As soon as the road from Bears Ears to the Goose Necks is completed, ore from the Happy Jack mine in White Canyon is expected to add greatly to the flow of ore to Mexican Hat.

ANSWERS TO DESERT QUIZ

Questions are on page 27

- 1—Blossom of the ocotillo is red.
- 2—Prayer for rain.
- 3—Lost Dutchman mine in the Superstitions.
- 4—Philip St. George Cooke.
- 5—New Mexico.
- 6—Verbena.
- 7—Salt.
- 8—An organic coating that covers desert rocks.
- 9—Apache.
- 10—North rim of Grand Canyon.
- 11—Roadrunner.
- 12—Phoenix, Arizona.
- 13—Native Palm.
- 14—Into the Colorado River at Yuma.
- 15—Santa Fe.
- 16—San Francisco Peaks.
- 17—Utah.
- 18—Holbrook.
- 19—George Wharton James.
- 20—Butterfield built a stage line across the Southwest 100 years ago.

URANIUM NEWS

Utah Uranium Mine Sells For Record \$17,000,000

The largest transaction on record in the history of Western uranium mining saw the exchange of the Cord Uranium Mine in Big Indian District, San Juan County, Utah, for \$17,000,000. The E. L. Cord partnership of Reno, Nevada, sold the mine to Jen, Inc., a privately-held company.

E. L. Cord, former president of Auburn Automobile Company and producer of the Cord car, has about 12 partners in the firm which obtained the undeveloped properties in the uranium district a few years ago.

The mine has over 500,000 tons of 0.7 percent U308 ore and has been producing from 5000 to 6000 tons of ore monthly since November of last year. About 60 miners and surface mine workers are employed at the property.—*Salt Lake Tribune*

Every U.S. City to Have Atomic Plants in Future

L. J. Beaufait, Jr., head of the technical division of Tracerlab Corporation, predicted the United States would have over 1500 atomic plants producing heat and power by 1980, and eventually every city, big or small, will have an atomic plant to replace existing fuel plants.

Beaufait said the increased use of atomic energy throughout the world is based on the ability of scientists to solve one key problem—the disposal of atomic waste material safely. Rays from these materials are dangerous for from five to 20 years and others for several hundred years.—*Phoenix Gazette*

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GOVERNMENT RELEASES NEW PERMIT, LEASE REGULATIONS

A new procedure for issuing uranium prospecting permits and leases on government lands controlled by agencies without authority to issue such papers, was announced in Washington.

The Interior Department's Bureau of Land Management will assist the Atomic Energy Commission in administering the program.

Applications for permits and leases should be filed with the BLM's land office for the state where the land is situated. The AEC will approve and issue any permits and leases.

The new plan applies to such lands as

military reservations and reservoir areas. Not affected are public lands open to entry under the mining laws and lands under AEC control subject to lease under existing regulations.

"Permits and leases will not be issued under this regulation for lands administered by the United States for national parks, monuments or for wildlife purposes," the announcement said.—*New Mexican*

• • •

Atlas Purchases Control Of Rio De Oro U-Mines

Atlas Corporation has acquired controlling interest in Rio De Oro Uranium Mines, Inc., of Albuquerque, Floyd B. Odum, Atlas President announced. Rio De Oro has two substantial ore bodies in the Ambrosia Lake area north of Grants, New Mexico, and the only mine to date in that area producing ore in commercial grades and quantities. It has mined and sold approximately 20,000 tons of ore to date.

Big Uranium Production Seen for West Colorado

An AEC official has forecast an approximately 50 percent increase in uranium production on the Western Slope of Colorado by 1959.

Allen E. Jones, manager of the Grand Junction AEC office, said uranium production on the Western Slope is expected to increase from its present \$38,000,000 per year to \$56,000,000 in 1959.

"At this time we see no drastic reduction in our total operations at Grand Junction," he said. However, the AEC official explained there might be some changes when the federal government's ore buying program comes to an end in 1962.

Jones said vanadium production is expected to increase as well, bringing additional revenue to miners in Western Colorado.—*Dove Creek Press*

Boundary Study to Determine Uranium Mine Controversy

A study of a portion of Utah's southern boundary in San Juan County is planned by the State Land Board to determine whether a few tons of Utah have been nibbled off in a mine originating in Arizona. The subterranean nibble alleged by Radium Hill Uranium Corp., which holds a state lease in the area, has caused a loss of several thousand tons of uranium ore.

Radium Hill had a survey taken of the area and it showed that individuals operating a mine under a Navajo Indian tribal lease in Arizona had followed a uranium vein about five feet into Utah.

A study by the operators of the Arizona mine showed that the northernmost drift in the mine had missed the state line by several feet. The state said the only thing to do is to conduct an independent survey.—*Salt Lake Tribune*

Ranchers Exploration Has Eight Percent of U-Ore

An organization of New Mexico landowners estimates that eight percent of the nation's uranium reserves are on land held by the firm. Ranchers Exploration and Development Corporation based its estimates on recent figures released by the Atomic Energy Commission which showed an estimated U. S. reserve of 60,000,000 tons, most of it in New Mexico and nearly 19,000,000 in the Ambrosia Lake area alone. The landowners formed the company in 1954 with the aim of negotiating a share of the uranium royalties back to them from the larger mining companies. The company now owns royalty interest in 100,320 acres in McKinley, Catron, Valencia, Socorro and Torrance Counties.—*Grants Beacon*

J. S. Wisdom of Goldpoint, Nevada, reported that he has sold his uranium strike made in an old patented gold mine for \$500,000 of which he received \$10,000 down and the balance at \$500 per month. A California firm bought the mine.

A proposal for a new uranium mill in the Ambrosia Lake area of New Mexico was submitted by Phillips Petroleum Co. to the Atomic Energy Commission. The mill would have a capacity of 1500 tons per day.—*New Mexican*

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Operator adjusting the plastic fresnel lens to control the focal point of sunlight on the ceramic brick oven.

'Solar Wrought' Jewelry From an Inexpensive Sun-Powered Kiln...

Here is a practical and modern hobby suggestion—combine the Southwest's abundant sunshine with the lapidary arts and come up with "solar wrought" jewelry. For less than \$10 you can make a solar kiln.

By D. S. HALACY, JR.

The theme of the World Solar Symposium in Phoenix—"The Sun at Work"—was no idle boast. Even the handsome enameled pins worn by the 200 officials were sun-made; fired in a solar kiln!

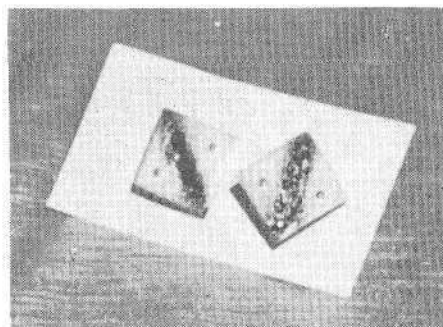
While more spectacular equipment vaporized metal at 7000 degrees, ran telephones and radios and pumped water, the Fine Arts Association set up shop with a ceramic oven and made jewelry on the spot. With designs created by local artists, cufflinks, earrings, and pins sold almost before they had time to cool. Each piece was stamped "Solar Wrought," something unique in jewelry.

Scientist Paul Magill of the Stanford Research Institute thought up the idea. He

sent the solar kiln, consisting of a plastic Fresnel lens, a simple mounting and a ceramic brick oven, to Phoenix where the Fine Arts group took over.

Solar jewelry-making isn't easy, and one artist says a third hand would help when juggling the lens in a stiff breeze. The small focal point, or hot spot, limits the size of pieces that can be fired and obviously work ceases when the sun sets or goes behind a cloud.

However the solar kiln does give more control than is possible with a conventional electric kiln. Some artists like the idea of being able to see the powdered enamel fuse during the operation. And the fact that the heat can be positioned as well



Solar wrought cuff links.

as varied makes for more artistic latitude.

Aside from these differences the making of jewelry is much the same as with an electric kiln. A formed piece of metal is coated with gum tragacanth and sprinkled with powdered enamel. In the kiln, the enamel flows out and fuses to the metal. If desired, additional designs can then be added and re-fired. The official pins are an example, with a rich blue enamel background and a design added in liquid gold and re-fired at 1200 degrees.

The plastic lens is capable of a maximum of more than 1500 degrees temperature,

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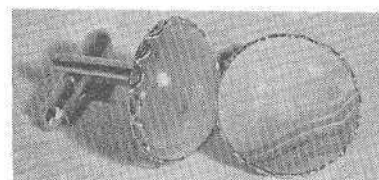
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and handymen are interested in it for melting and soldering operations. The sun provides pure, uncontaminated heat and this fact is of great importance to metalurgists.

Copper is used in the solar jewelry, being favored over aluminum, steel and the precious metals because it is inexpensive, easy to obtain, very easy to form, does not corrode and can be coated with very little processing. This gives Arizona a wealth of the two main ingredients for solar wrought items. The idea is taking hold fast, with schools offering craft classes featuring the solar kiln.

Fresnel lenses may be purchased cheaply from surplus suppliers, and the wooden frame is simple and inexpensive. The whole kiln may be made for about \$10 or less, and once built the heat is free. So when you hear someone mention "heavenly" jewelry these days he may mean just that!

One of the largest and most valuable exhibits of Chinese jade ever shown in this country is planned by the Pioneer Museum and Haggin Galleries in Stockton, California, for this spring. Exact dates for the show have not been set. There will be no admission charge.

Gem Show Calendar For May and June

These gem and mineral shows are scheduled for May and June:

May 3-5—Texas Federation of Mineral Societies, annual show and convention, Bexar County Coliseum, San Antonio.

May 4-5—Glendale, California, Lapidary and Gem Society's 10th annual show at Civic Auditorium.

May 4-5—5th Annual San Joaquin Valley Gem and Mineral Show at fairgrounds, Stockton, California.

May 4-5—Tourmaline Gem and Mineral Society show at Grossmont high school between La Mesa and El Cajon, California.

May 11-12—8th Annual Gem and Mineral Society of San Mateo County show at fairgrounds, San Mateo, California.

May 11-12—Coos County Mineral and Gem Club's annual show at Community Building, North Bend, Oregon.

May 17-19—17th Annual Amateur Hand-crafter Gem and Jewelry Competitive Exhibition of the Chicago, Illinois, Lapidary Club. Hamilton Park Field House.

May 18-19—Fifth Annual Five-Club Gem Show, Camas, Washington.

May 18-19—Everett, Washington, Rock and Gem Club show.

May 25-26—East Bay Gem and Mineral Society's annual show at Foothill Masonic Temple, Oakland, California.

May 30-31, June 1—Annual Rockhound Round-up of the Rollin' Rock Club of Alpine, Texas.

June 1-2 — Grand Junction, Colorado, Mineralogical Society's annual Gem and Mineral Show at Lincoln Park Auditorium.

June 7-9—Wyoming State Mineral and Gem Show at fairgrounds, Casper.

June 8-9—Mt. Emily Gem and Mineral Club's gem and mineral show at V.F.W. Hall, Brookings, Oregon.

June 13-16—1957 National Gem and Mineral Show and Convention of the American Federation of Mineral Societies and the Rocky Mountain Federation of Mineral Societies, Denver, Colorado.

June 15-16—Paradise, California, Gem and Mineral Club's annual show at Veterans Memorial Hall.

June 21-22 — Gem County Rock and Mineral Society's annual show at Emmett, Idaho.

June 22-23 — Rogue Gem and Geology Club's 5th annual show at fairgrounds, Grants Pass, Oregon.

THREE NEVADA GEM CLUBS PLAN SHOW ON JULY 20-21

The Nevada Gem and Mineral Show is scheduled for July 20 and 21 at the Recreation Building, Idlewild Park, Reno. Participating clubs include the Washoe Gem and Mineral Society; Pyramid Gem and Mineral Club, both of Reno; and the Lahontan Gem and Mineral Club of Fallon. Show officials have invited all other clubs and individuals interested in displaying to contact Claude R. Mowry, 3325 Smith Drive, Reno. Two field trips are planned in conjunction with the show.

Now on display at the Victor Valley Gem Shop at Hesperia, California, is a 178 pound turquoise nugget, thought to be the largest in the world. The huge stone is of gem quality and about 50 percent spiderweb formation, according to Walt Pilkington, the gem shop owner.



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CONVENTION, GEM SHOW IN DENVER, JUNE 13-16

The Colorado Mineral Society will be host to the 1957 National Gem and Mineral Show, June 13-16, at the Colorado National Guard Armory, East Third Avenue and Logan Street, Denver. The combined American and Rocky Mountain Federation is sponsoring the show in conjunction with its convention.

Both competitive and non-competitive displays are planned. Society or club membership is not necessary to display non-competitively, General Chairman James F. Hurlbut said. And displays will not be charged entry or registration fees, but space is limited. Those desiring information should write to A. Ermish, 1774 Kingston Street, Denver 8, Colorado.

The Woodruff Trophy is to be awarded to the best qualifying mineral display and the Parser Trophy will be given for the first time to the best lapidary display.

Walter Pilkington's onyx dinner ware and A. G. Parser's diamond display are among the outstanding show exhibits planned.

COMMON POTATO PROTECTS RING WHILE SOLDERING

If you want to enlarge or repair a ring shank and it is not practical to remove the setting, take a potato and cut one end so it will stand; next cut the potato's top off and insert the stone in a slit on this surface, leaving only the ring area to be soldered exposed. The potato will absorb the heat and protect the stone.

When using chrome oxide for polishing jade, mix it with a solution of one part water to one part vinegar. This will help the polish grab to the buff.

After polishing agate with chrome oxide the green residue on the stone can be removed by soaking the agate in muriatic acid for a short period. This acid will attack chromium readily and also will attack chrome oxide and break it down so that it can be brushed off. The acid will not damage the agate or jade. — Daroll Albright in the Verdugo Hill, California, Gem and Mineral Society's *Rockhound News and Views*

SPHALERITE INTERESTING GEMS DESPITE SOFTNESS, CLEAVAGE

Clear gem quality sphalerite produces beautiful faceted stones because of its high refraction and color dispersion. The scarcity of suitable material, lack of hardness and easy cleavage prevent this mineral from enjoying a more highly regarded position in the gemstone world.

The name sphalerite is from the Greek word meaning deceitful and was given because of the mineral's frequent occurrence with and resemblance to galena. Its composition is zinc sulphide, invariable with other elements present. These other elements give it its color, for in its pure state it is colorless. Common colors are yellowish-brown when transparent deepening to an almost opaque black.

Some sphalerite fluoresces orange in ultraviolet light. Fluorescent sphalerite also shows the remarkable phenomena of triboluminescence, that is, it emits flashes of orange light on being lightly stroked with a hard substance such as steel or stone.

Sphalerite is very common and is prevalent in most of the mining regions. Its typical associate is galena, but often it is also intimately associated with pyrite, chalcopyrite, tetrahedrite, arsenopyrite and lead-silver minerals.—R. Brock in the Compton, California, Gem and Mineral Club's *Rockhounds' Call*

NEW BOOK DESCRIBES CALIFORNIA MINERALS

One of the most popular and useful volumes in the mineral science and rockhound circles again is available. Bulletin 173, *Minerals of California*, which has been out of print for several years, recently was reprinted by the State Division of Mines.

The new edition is revised, with new minerals and mineral locations added. The hard-cover book lists 523 minerals and 2000 references to the published data on the mineral localities. Prepared under the direction

of Olaf P. Jenkins, chief of the Division of Mines, the book was written by Professors Joseph Murdoch and Robert W. Webb of U.C.L.A. and the University of California at Santa Barbara, respectively. These same two men wrote the "Minerals of California" bulletin preceding this one, in 1945.

Published by the Division of Mines; 452 pages; bibliography; \$3.00.

The Santa Clara County Gem and Mineral Society's annual show is scheduled to be held at the IES Hall in San Jose, California, September 21 and 22.

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FIFTEEN FOSSILS for \$2.50 postpaid. Florida pleistocene or Florida pliocene. Fifteen shells for \$2.50, postpaid, Florida marine shells or Philippines. Complete set of Desert Magazines for sale. South-eastern Mineral Co., Box 2234, Lakeland, Florida.

FIRE AGATES! \$1, \$3, and \$5 sizes. Choice gem cutting material 20 pieces \$2. Swigert's, 2218 Louella, Venice, Calif.

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OPALS AND SAPPHIRES direct from Australia. Special—this month's best buy: Rough opals to cut ring and pendant stones; one green fire opal; one transparent jelly opal; one blue opal; one white-red opal; one black opal; one boulder opal. All six stones for \$15. Free airmailed. Send personal check, international money order, bank draft. Free 16 page list of all Australian Gemstones. Australian Gem Trading Co., 49 Elizabeth Street, Melbourne, Australia.

GEMS OF THE desert, tumbled polished baroque. Mexican lace and carnelian agate. Death Valley jasper agate, rose quartz, petrified wood palm, black fig, many others. General mixture, \$6 pound. Mexican agate slices and various cuff link preforms. Slabs and findings. Earring size tumbled turquoise \$8 pound, larger size \$1 ounce. Price list. Golden West Gem Co., 7355 Lankershim Blvd., North Hollywood, California.

OPALIZED WOOD 65c pound plus postage. A. B. Cutler, Box 32, Salmon, Idaho. Slabs, tumbled, J. E. Cutler, Gearhart, Oregon.

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FIRE AGATE—ground to show the fire, you finish it. \$2, \$3 and \$5 each. B&H Rock Shop, 29 Cherry Lane, Granbury, Texas.

VISIT GOLD Pan Rock Shop. Beautiful sphere material, gems, mineral specimens, choice crystals, gem materials, jewelry, baroque, etc. Over 100 tons of material to select from. John and Etta James, proprietors, 2020 N. Carson Street, Carson City, Nevada.

ROCKS—opposite West End Air Base, agate, woods, minerals, books, local information. No mail orders please. Ironwood Rock Shop, Highway 60-70 West of Blythe, California.

TUMBLING GEMS of the desert for sale. Agates, jaspers, obsidians, etc. Mixed lots \$4 per pound. T & J Rockhounds, 9000 National Blvd., Los Angeles 34, California.

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HAVE REAL FUN with desert gems, minerals and rocks. The rockhound's how-to-do-it magazine tells how. One year (12 issues) only \$3.00. Sample 25c. Gems and Minerals, Box 687-D, Mentone, California.

RONETA AGATES of Fire finished in precious gem style from chalcedonic quartz, hardness of 7-plus, specific gravity 2.62. Rare, individual gems that never fade. Every gemstone has sparkling bubbles of fire varying from sunshine yellow to red gold, or with shades of green, and other colors from the desert rainbows. Years of research showed how to reveal volcanic fires within layers of pearl white and desert browns, in designs intricate as snowflakes and as individualistic. Gems of rare quality. Write for prices, sizes and description of finished stones. Juanita Mines and Laboratories, Ervin E. Spiers, 123 No. Main, Blythe, California.

THE CONTINENTAL Minerals welcomes your orders and inquiries about massive and also crystallized mineral specimens. No cutting material. Free list. New, more complete spring-summer list available at the end of this month. Box 1206, Anaconda, Montana.

Bloodstone, or heliotrope, is a dark green chalcedony with bright red spots. While chalcedony is widely distributed throughout the world, bloodstone is found in quantity only in India, the Ural Mountains and the Hebrides. Occasionally the various California jasper locations will yield a brown and red-spotted stone that is called "California bloodstone." Attractive cabochons can be cut from this material. — Gerald Hemrick in the Contra Costa, California, Mineral & Gem Society's *Bulletin*

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New Gem-Mineral Club Officers

New officers of the Verdugo Hills Gem and Mineral Society of La Crescenta, California, are Will Wright, president; Joe Barnes, vice president; Marie Garrett, secretary; and Gene Judson, treasurer.—*Rockhound News and Views*

The Gem Collectors' Club of Seattle, Washington, has elected the following new officers: Sam Jensen, president; Lula Roberson, vice president; Norman Harvey, treasurer; Mrs. Everett Hore, secretary; and Adolph Kietz, Roy Anderson, Willard Baker, Ralph Gustafson and Mrs. Mary Witte, directors.—*Nuts and Nodules*

The Miami, Florida, Mineral and Gem Society recently elected these new officers: Albert B. Wilson, president; Tom M. Hay, first vice president; J. Gordon Earley, second vice president; Neal M. Brock, treasurer; and Mrs. M. S. Harley, secretary.—*Chips and Facets*

Sol Stern was elected president of the Whittier, California, Gem and Mineral Society. Serving with him will be Sylvia Burns, first vice president; Bob Bannantyne, second vice president; Gertrude Bowcutt, treasurer; Eunice Berry, secretary; and Gene Golsan, Bill Burns and Mrs. Howard Lucy, directors.

Recently organized was the Monrovia, California, Rock Hounds club. Officers are Ross Porter, president; Walter Dovoni, vice president; O'Deal Fear, secretary; and Mrs. Joseph Connor, treasurer.

Amateur lapidaries of the Pomona, California, area have organized the Pomona Rockhounds Club. Officers elected were Tom Starkey, president; Fred Warren, vice president; Mrs. John Perdew, secretary; and John Salado, treasurer. Club meetings are scheduled for the first Tuesday of every month.

New officers of the Searles Lake Gem and Mineral Society of Trona, California, are Orvie Ross, president; John O. Coppom, vice president; Dulcie Archer, recording secretary; O. N. Cole, corresponding secre-

tary; Otto Mont-Eton, treasurer; Dottie Brissaud, federation director; and M. L. Leonardi, Glen Schafer, Laurence Darnell, A. J. Tankersly and Dorothy Baker, directors. The organization's annual show has been scheduled for October 19-20.

"LOST" JADE MINES BEING WORKED, CLEMENTS REPORTS

The long "lost" mines of Southern Mexico which were believed to have provided jade for tribute to Montezuma, were never lost but merely kept a profitable secret for centuries by villagers in the state of Guerrero.

This is the belief of Dr. Thomas Clements, USC professor of geology, who recently returned from a 10,000-mile jeep trip through remote sections of Mexico. He brought back specimens of the high-quality jade which is being sold to tourists and gem dealers by residents of the area.

The Mexican government holds the mineral rights to the area, which probably is being worked by Indians who have not filed claims and have avoided attention. Dr. Clements believes the valuable jade deposits exist in the vicinity of Taxco.—*Los Angeles Times*

FACET COLORLESS BAROQUES, RETUMBLE FOR NEW BEAUTY

Most rockhounds who process rocks in a tumbler often lay aside those stones which are clear and colorless, or nearly so, and to most people not nearly as pretty as those with color and figure and designs. Also, in nearly every batch of baroques which are finished by tumbling, there are some specimens which are not as attractive as the person doing the tumbling supposed they would be, and they generally are discarded or presented to some beginner or young person interested in gems.

A method has been devised by which these clear, light-tinted or otherwise unpopular rocks may be transformed into delightfully beautiful baroques.

After a selection has been made of the sort of rocks mentioned above, either tumbled or broken in preparation for tumbling, grind a flat base on each stone on the grinding wheel or horizontal lap, using 220 abrasive grit. Then dop the stones and grind out all pits, soft inclusions, etc. Next step is to grind promiscuous and vari-sized flat faces or facets over the entire portion of the stone above the base, these facets extending down to the flattened portion if they approach this area. Large facets meet

small ones, the lapidary using imagination and artistic ability to create attractive designs, endeavoring to cause the rays of light which enter the stone to be refracted to the best advantage.

When two or three dozen such stones are thus faceted, tumble them with other rocks of the same hardness, taking into consideration that they will not need to be tumbled as long as the very rough ones. They should be placed in the drum after the main charge of broken rocks has been ground for some time, with the hexagonal type drum well filled to avoid too severe striking of stone upon stone.

When the charge of polished and burnished baroques is cleaned and inspected, the faceted stones will stand out prominently, their unequal faces highly polished and the sharp divisions rounded enough to make them smooth and attractive. Mounted flat by cementing or capped for display in chain jewelry, they are very attractive and different.—Harry Zollars in the El Paso, Texas, *Rockhounds' The Voice*

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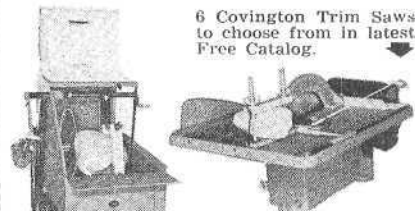
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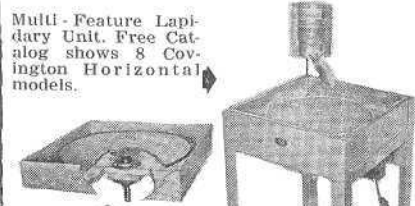
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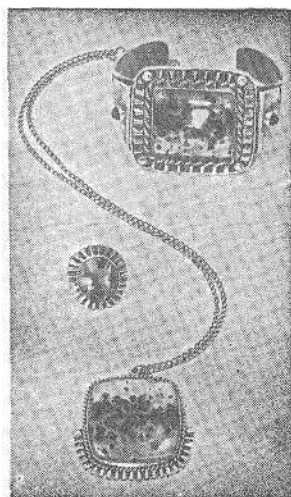
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AMATEUR GEM CUTTER

By DR. H. C. DAKE, Editor of The Mineralogist

The colored transparent varieties of spinel, when cut facet, offer attractive possibilities as a gem stone. Spinel, with a hardness of eight and a relatively high index of refraction (1.71), is widely used as a commercial gem stone and can be added to the gems cut by the "amateur."

This magnesium aluminate, occurring in a wide range of pleasing colors, when cut into standard brilliant styles gives forth a good play of light and sparkle. The colors include blue, green, yellow, brown, red and sometimes white. The various shades of red often are termed spinel "ruby."

Where the material is deeply colored, styles other than brilliant can be used to best bring out color. In recent years quantities of synthetic spinel have been sold to the jewelry trade, and with the high hardness and range of colors, the artificial gem is proving popular.

When cut in standard brilliant styles the main crown facets should be cut to 37 degree angles and the main pavilion facets at 41 degrees. These angles have been found satisfactory by numerous experimental cuts. Cutting of the facets can be readily accomplished by medium grit silicon carbide or Norbide.

Polishing of the facets is done in the same manner as with topaz. Compared to topaz, spinel is easier to polish, possibly due to the fact that spinel lacks the marked cleavage present in topaz.

In the cutting of colored stones in brilliant styles, eight culet facets can be added to good advantage, making a gem with 65 facets in place of the regular 57 facets. The eight culet facets are placed about the apex of the stone by cutting a flat surface on the edges of the eight main pavilion facets. In short when the eight culet facets are added they occupy the same relative positions as to the eight table facets, which are on the crown of the gem. The eight culet facets are indicated only in colored stones. Culet facets placed on material like colorless quartz and topaz, appear to detract from the gem.

E. P. Van Leuven calls attention to the fact that the amateur gem cutter often will finish a cabochon too thick to bring out the best beauty in the gem.

Usually, states Van Leuven, the amateur will finish a cabochon too "lumpy" or thick. Caruncles, asteriated stones and sometimes opals are exceptions to this rule. The professional or experienced lapidary will seldom produce a cabochon over one-eighth of an inch thick, even in larger sizes like brooches.

Thickness may not be important in bringing out the beauty of opaque gems like turquoise, but in the case of translucent and transparent material, thickness can have a considerable influence on appearance. The translucency of the colorless chalcedony matrix of moss and scenic agate will frequently vary from specimen to specimen, and here again good judgment on the part of the cutter will influence the beauty of the finished cabochon.

A cabochon to be mounted in a standard bezel mounting should be less thick at the bezel edges, and a slope of about 80 degrees should be given to the stone at this point, according to Van Leuven. This slope (toward center of stone) is to enable the metal of the bezel to grip the stone properly. Where the bezel edge of the stone is not properly cut, the metal will not grip the

gem properly, and stones of this kind will tend to work loose in the mounting and rattle when worn.

It is suggested that on the average, sawed slabs intended for cabochon cutting should be cut about one-eighth of an inch thick. A low crown on a large cabochon is obviously harder to polish than a steeply sloping crown surface, but if the material is worth cutting at all, it is worth doing the job properly. Even a slightly rounded surface is much easier to polish than one which is quite flat, and this is especially noted on the large cabinet size specimens.

Often the amateur, lacking experience, will finish a large number of cabochons of assorted sizes. Where no regard is given to the thickness of the stone in general and the slope of the bezel angle, it will be necessary to recut many of these if the stones are to be used in the jewelry trade.

The sands of beaches in various parts of the world often are of a distinctive color, due to the dominance of some colored mineral. We have many examples of this interesting feature in various parts of the world.

For example, Makapuu beach on the Hawaiian Islands is composed of a large percentage of olivine sand, hence presents a distinct green color. The noted beaches at Nome, Alaska, carry large quantities of garnet, hence the sand is quite reddish in color. The ocean beaches along the northern Washington coast also carry large amounts of garnet, and often are referred to as "ruby" beaches, or sands.

Along the coast of North Carolina may be noted typical green sand beaches. At many places along the southern Oregon coast, magnetite sand has been concentrated, to comprise the black sand beaches. At other points quartz sand is the dominant constituent, giving the beaches a dazzling white color. In some parts of the world, mica is dominant in the beach sands, giving a still more dazzling effect in bright sunlight. In India we find various typical colored beach sands including greens and reds.

For many years, prior to the introduction of the modern "micron" grits polishing powders, it was customary to polish sapphire on an iron lap using common tripoli as the polishing agent. This method, while slow and laborious, was effective.

In recent years, various firms have introduced very finely divided polishing powders, usually sold under micron size grade. These include diamond and synthetic sapphire grits.

These are especially valuable in polishing

both synthetic and natural sapphire. The new synthetic rutile (titania) may also be polished with micron diamond grits. In cutting the facets on sapphire, 100 grit Norbide may be used to good advantage, but some gem cutters prefer to cut the facets on an iron or zinc lap using a micron size diamond grit of from 20 to 50 size.

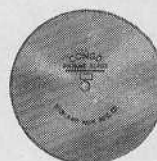
The tin lap is most excellent in placing the final polish on sapphire, using a micron size 0 to 2 diamond powder, and kerosene as the lubricant in place of water. Since kerosene has a wholly different surface tension from that of water, it is preferred by many gem cutters in working with either natural or synthetic sapphire.

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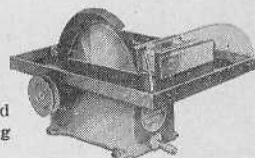
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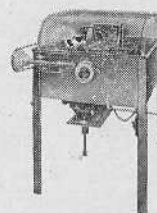


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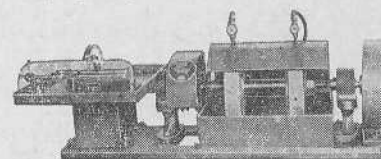
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BOOKS of the SOUTHWEST

MAN'S KNOWLEDGE OF RATTLESNAKES COMPILED IN NEW WORK BY KLAUBER

Probably fewer than 1000 persons are bitten by rattlesnakes in this country each year, and of that total an estimated 30 to 35 die—a mere fraction of the highway death toll on a holiday, and a sum often exceeded in a single plane crash. The chances of being killed by a rattlesnake are even less than for being fatally struck down by lightning.

Statistics become even more clarifying when we consider that the majority of the bites sustained can be avoided if people would watch where they step and where they put their hands—and if they would leave the handling of reptiles to the herpetologists.

Yet, despite all this, unknown thousands of Americans shun the outdoors because of their fear of poisonous reptiles.

This fear and the folktales, conversation, newspaper lineage and even the length of this book review regarding rattlers are out of proportion to the actual degree that rattlers are likely to affect us—but accurately reflect the interest they hold for us.

Man's misinformation on these creatures is unparalleled in his relation to his physical environment in the Western Hemisphere where rattlers are found, which underscores the significance to the scientific and non-scientific world alike of Laurence M. Klauber's two volume work, *Rattlesnakes, Their Habits, Life Histories and Influence on Mankind*. The author is consulting curator of reptiles at the San Diego, California, Zoo and his book is the culmination of 35 years of research in the field and laboratory. It contains everything that is now scientifically known about rattlesnakes as well as the folktales that have grown out of man's association with them before and since discovery of the New World.

But these volumes are more than a giant step from the realm of darkness into the light of knowledge—they reflect the versatility and capacity for dedication in man, for Klauber is an engineer by profession. The study of rattlesnakes is his hobby.

Here, briefly, are a few of the interesting facts about rattlesnakes confirmed in the book:

The severed head of a rattler remains dangerous (capable of biting and injecting venom) for at least 20 minutes and sometimes for almost an hour.

The heart of a decapitated sidewinder beat for 59 hours after severance of the head. Left on its back, a Great Basin rattler suddenly righted itself five hours after decapitation. These examples of reflex action have resulted in the folk belief that injured rattlers live until sundown.

Yet, despite this seemingly strong hold on life, rattlers are relatively frail creatures and are easily killed. Their backbone is both delicate and vulnerable.

Snakes are deaf to airborne vibrations. They cannot hear their own rattles. Experiments show that rattlers do not react to the sound of a radio, but will react to the heating of the radio's tubes. This results from their facial pit sense organs which are radiation-sensitive and are used by the reptiles to track down prey.

Drop for drop, the venom of some species of rattlesnakes is 60 times more powerful than the venom of others.

Rattlesnake venom can be drunk without ill effect. It has a slight taste, astringent at first and then turning sweetish when held on the tongue. It produces a slight tingling effect on the lips. Thus a person is in no danger when he sucks the blood from a lanced rattlesnake wound.

Out of 100 bites, an average of 98½ are suffered on the arms and legs; bites in forearm exceed upper arm by 20 to 1; shin and calf bites exceed thigh bites 20 to 1; hand bites exceed wrist 7 to 1; and bites in front of foot exceed heel 2 to 1.

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Even with the crudest treatment or without any treatment whatsoever, rattlesnake bites would probably not be fatal in more than 10 percent of the cases.

During the last war, there was not one rattler bite fatality among the troops trained in the United States—representing 20,000,000 man years of exposure.

The largest species of rattlers (Eastern diamondback) very rarely reach eight feet in length. Western diamondbacks occasionally attain six to seven feet.

The rattler's top speed, even for very short distances is no faster than a man can walk—about three miles an hour.

People who kill all snakes "to play it safe" actually make things easier for rattlesnakes to survive, for harmless snakes compete with rattlers for the food supply (predominantly rodent) in the immediate area. The introduction of food competitors is more effect in controlling rattlers than introducing

(Continued on page 43)

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By RANDALL HENDERSON

7WO WEEKS ago I drove over the newly paved road which connects Yucca Valley and the Twenty-nine Palms area with Lucerne and Apple Valleys on California's Mojave desert.

The landscape along this route is sprinkled with the cabins of Jackrabbit homesteaders—folks who have acquired five acres of Uncle Sam's domain under the Small Tract Act of 1938.

Some of the homesteaders have constructed well-designed little cottages that reflect pride and creativeness. Others have built cracker-box affairs that merely afford shelter from wind and sun. Perhaps the builders have dreams of something better in the future—dreams which you and I will hope come true, for not many of us want to see our desert landscape cluttered up with ugly shacks.

I have serious misgivings about a new policy which Federal Bureau of Land Management recently has announced in connection with the disposal of its small tracts. Until recently, a 5-acre tract could be obtained only by leasing the land, with the provision that a patent would be issued if certain improvements were made within a year, otherwise the lease would be forfeited. Under that regulation, the Land Office has had some control over the timing and construction of a desert cabin. The rules, at first very lax, gradually have become more restrictive.

Now a new program has been initiated at the Los Angeles land office. In recent weeks many hundreds of delinquent tracts have been put up for sale to the lowest bidder at auction. The buyers are to be given the title at once with no obligation as to improvements.

In other words, land which was intended by the original Act to be classified for "home, cabin, health, convalescence or recreation" becomes pawn in the real estate market, to be bought and sold for speculation. A buyer who buys in good faith for the purpose of erecting a week-end cabin on the desert, may readily find himself surrounded by speculative holdings whose owners have no interest in developing roads, putting down wells, bringing in electric service or any of the cooperative improvements which are necessary to create comfortable living quarters.

If the Small Tract Act is to serve the worthy purposes for which it was intended, then it appears that more restrictions, rather than less, should be imposed upon those who would share in this distribution of the public's domain.

We whose homes are in this land of far horizons do not want our landscape to become the pawn of get-rich-quick speculators.

* * *

Those who have always regarded the Navajo Indians as a poor and impoverished tribe of native Americans will have to revise that estimate. During the past year over \$33,000,000 has been paid into the Navajo tribal fund

for mining and oil concessions, and there is a promise of additional royalties in the future.

And if you are wondering what the tribesmen will do with so much money, the answers already are becoming apparent. Some of it is to go for education, some for roads, and a portion has been allotted to the bringing of industrial development to the reservation to provide resident payrolls for tribal members.

In 1934 the Navajo Tribal Council passed a very significant resolution, providing in part as follows: "... all areas of scenic beauty and scientific interest which require preservation be hereby reserved as Navajo Parks, Monuments or Ruins, to be managed by the Navajos themselves with the cooperation of the Indian Service, and other helpful agencies ..."

At the time the resolution was passed, the Indians had no funds with which to carry out the program. But they have the money now, and they have lost no time in implementing the 1934 resolution. Recently the Tribal Council by a vote of 62 to 0 empowered Tribal Chairman Paul Jones to appoint five tribesmen as a Navajo Tribal Park Commission to "survey places of scenic, historical, recreational or scientific interest on the Navajo Reservation and make recommendations to the Advisory Committee of the Tribal Council for the establishment of Navajo Tribal Parks and Monuments in particular areas."

I am thinking of Monument Valley. Agriculturally, it is so arid that only a few score of Navajo families eke out a bare existence. And yet what a gorgeous setting it would be for a National Park—a Navajo Tribal Park!—managed by the Indians.

With good roads into that amazing region of many-colored spires and domes and buttes and pinnacles, I am sure it would become one of the most popular recreational areas in U.S.A.

The tribal resolution provides that "The Navajo Tribal Park Commission shall not have authority to deprive any Navajo Indian or his heirs of the right to continue to use the area of Navajo Tribal land in the same manner he was using such area at the time a Navajo Tribal Park or Monument was established embracing such area."

And that is the way you and I would want it to be—where as visitors we would find the Indians—perhaps in better hogans than they now occupy—tending their flocks and weaving their rugs in the traditional manner.

I hope the Bureau of Indian Affairs and the National Park Service will cooperate with the Indians in carrying out their program—not in the role of bureaucrats telling the redskins what to do, but rather as sympathetic friends and advisors. The Navajos can do the job. I have no doubt of that. They have a reverence for the Good Earth which is not being taught in the white man's schools and churches—and perhaps from them we may learn some more effective ways to deal with litterbugs and vandals.

BOOKS...

(Continued from page 41)

their natural enemies. No animal feeds exclusively on snakes.

* * *

Function of the rattle is to scare away enemies — not to secure prey, mates or help from other rattlers. A rattlesnake's first line of defense is concealment. If this fails, it will assume its coiled position and threaten with rattle, hissing and darting tongue. Even then it will attempt to escape. Its last resort will be to strike out with its fangs, and in some instances will not eject venom which it tends to conserve for securing prey.

* * *

Far from loving to bask in the desert heat, rattlers must find shade quickly or perish for they are cold-blooded and thus take on the temperature of their surroundings. If they are subjected to intense heat for 10 or 15 minutes, they die, even at temperatures that would be only mildly unpleasant to a man.

* * *

The myth that rattlesnakes charm or fascinate their prey has no basis in fact. In most cases of alleged fascination the prey's failure to escape is due to its having been struck by the rattler before the observer came on the scene.

* * *

Rattlesnakes are found at altitudes as high as 11,000 feet. They tend to be more prevalent in arid regions—perhaps in part because of the more favorable conditions of their food supply.

* * *

With prompt first-aid measures and doctor's care, a rattlesnake bite is very rarely fatal. Klauber recommends that children who have no instinctive fear of snakes be taught a moderate fear of them, but not the hysterical reaction that many adults show.

Published by the University of California Press in two volumes; illustrations, graphs, charts, maps; bibliography and index; 1476 pages; \$17.50.

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For most Americans the peninsula of Lower California has remained a land of mystery — a land inaccessible except to the most venturesome explorer. Having no railroads except along a portion of the California border, few roads and most of them very bad, and little communication with the rest of the world, the greater part of the 800-mile span from the California border to the Cape of San Lucas is arid and uninhabited.

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(see review starting on page 41, this issue)

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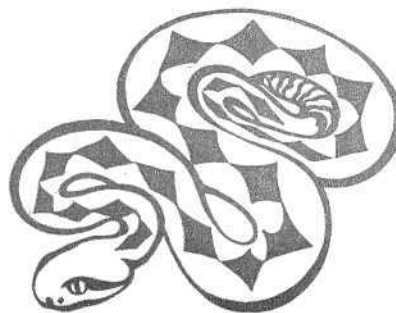
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