

Desert

JUNE, 1955 35 Cents





WHERE NATURE BUILDS

By MARIE L. WEAVER
Ventura, California

I drive far up the winding mountain road,
Where smoky wings of moving clouds en-
snare

For one short breath of time, a gift bestowed
By nature in those cloistered places there.
Horizon peaks surround me as I climb,
And, suddenly it seems, I come upon
A different world—a place apart—sublime
In startling, colorful phenomenon.
Amid the snow-filled carpeting of pine,
A rainbow's prisms light of desert flowers
Burst forth. How wondrous and unreal to
find

Such beauty growing in sequestered bowers.
I feel the breath of the Almighty near,
Rhythmic and peaceful as a sleeping child.
There is no sense of stress or human fear
Where nature builds and everything grows
wild.

DESERT PATTERNS

By LAURA W. DUNLAP
Santa Ana, California

Desert patterns are wild and free
Until man comes with water, power;
Then waste land grows abundantly
Vast cotton fields, alfalfa flower.

A TURQUOISE BEAD

By WM. ELMER KEIL
Los Angeles, California

'Twas but a turquoise bead, so tiny,
With a hole for stringing through,
Once it had been bright and shiny,
Bits of matrix showing too.

There were secrets it held tightly
Of a maid, who long ago
Wore it on a thong, so lightly,
In the burning sun, or snow.

Navajo? Perhaps Pueblo,
Flashing eyes and jet black hair,
Half concealed in ruin-shadow,
Shyly, wily smiling there.

Mid the old Fort Selden 'closure
Where the years have wrought decay,
Rains unearthed this turquoise treasure,
Spirit of some yesterday.

Ancients

By GRACE BARKER WILSON
Kirtland, New Mexico

On heat-torn summer mornings such as this,
The gods of ancient desert lands looked
down

Upon the earth. They saw a genesis
Of movement grow intense among the brown
And barren rocks. The while a rhythmic chant
Arose up to the very skies to plead
The keeping of an ancient covenant
To send the rain and help in time of need.
And as the dancers formed in the long lines,
Cool moisture fell to lessen their sore dearth.
Against the painted cliffs are still smoke
signs

Left there by long forgotten sons of earth.

DO YOU KNOW THESE?

By OLIVE ANN PIXLEY
Glendale, California

Have you seen the desert willows in spring;
Or the slender blooms of the low mesquite;
The soft gray cloud of the smoketree there;
Or the palo verde in its retreat?

Have you ever savored the fragrant scents
That twilight brings from the desert flowers,
Where small seeds rested a thousand days,
Patiently waiting for scanty showers?

Have you heard the coyote's lonely bark—
A starveling's cry to the empty night?
Or been lost in the stars of a cosmic sky,
Where the moon hangs low and large and
bright?

Those rock-strewn mountains seem empty
and bare;
No greening of trees breaks the endless
brown,
But with all the colors of rainbow skies
They will clothe themselves when the sun
goes down!

Yes, the wind blows strong, and the sun is
hot,
And sometimes a day seems at least a week;
But give me the desert—its magic and fire—
And beyond, the snow on Gorgonio's peak.

AKIN

By MAY YARNELL
Boulder, Colorado

Little Navajo, watch your flock,
as duty now demands.
You've laid out stones, in play they mark
the boundaries of your lands.
Your rounded cheeks are brown, your
eyes by sun unsquinted yet.
Aloof at first, your quick glance
now, is roguish, black as jet.
Here in the desert sand you play
beneath the flaming sun.
I have a boy, fair skinned, your age,
would like to join your fun.

HORIZONTAL AND VERTICAL

By MABELLE B. MCGUIRE
Ventura, California

Someone said that planes are restful,
That horizons never tire;
As lofty lines lift man toward Heaven,
So vast cathedrals can inspire.

But when God conceived the desert,
Mountains placed He on the land,
Man may rest and be uplifted
By the sculpture of His hand.

This Individual Cross

By TANYA SOUTH
San Diego, California

A good, stout cross to carry
Up, up the stony Path,
Will make your feet more wary,
Your heart more filled with faith.

A good, stout cross will waken
The drowsiest of soul!
With purpose undertaken,
And with a constant goal,
Do not regret the gilding,
Nor weep because of strife.
A good, stout cross is building
For your eternal life.

For doing all your utmost right
Develops depth of Truth and Light.

DESERT CALENDAR

May 25-June 3—Arizona Boys State at Arizona State College, Flagstaff, Arizona.

May 28-June 19—"Tracks and Trails," exhibit of tracks from geologic past, Museum of Northern Arizona, Flagstaff, Arizona.

June 3-5—8th Annual New Mexico State Championship High School Rodeo sponsored by Santa Rosa Chapter of FFA, Santa Rosa, N.M.

June 5—Los Angeles Boat and Ski Club, Desert Shores, Salton Sea, California.

June 5-12—Nevada Boys State, University of Nevada, Reno, Nevada.

June 9-11—Arizona Cattle Grower's Convention, Safford, Arizona.

June 12 — La Loma Fiesta of St. Anthony, evening procession, Taos, New Mexico.

June 12—Corpus Christi Procession, Guadalupe Plaza, 11 a.m., Taos, New Mexico.

June 13—Indian "Green Corn" Dance, Sandia Pueblo; "Corn" Dance, San Ildefonso Pueblo, Albuquerque, New Mexico.

June 16-17—Kearny Entrada, Raton, New Mexico.

June 19—Procession of La Conquistadora, commemorating reconquest of New Mexico from the Indians, Santa Fe, New Mexico.

June 19—20-30 Club of Tucson Convention in Nogales, Arizona; bullfight in afternoon, Nogales, Sonora.

June 24—Indian "Corn" Dance, San Juan Pueblo, Espanola, New Mexico and Taos Pueblo, Taos, N.M.

June 24-26 — Silver State Stampede, Elko, Nevada.

June 25-26 — Indian Capital Rodeo, Gallup, New Mexico.

June 30-July 2—Lehi Roundup, Lehi, Utah.

Month of June—Special exhibit illustrating adaptation of ancient American Indian patterns to modern wares, by Genevieve Glosch, renowned modern Indian ceramicist, Southwest Museum, Los Angeles, California.



THE *Desert* MAGAZINE

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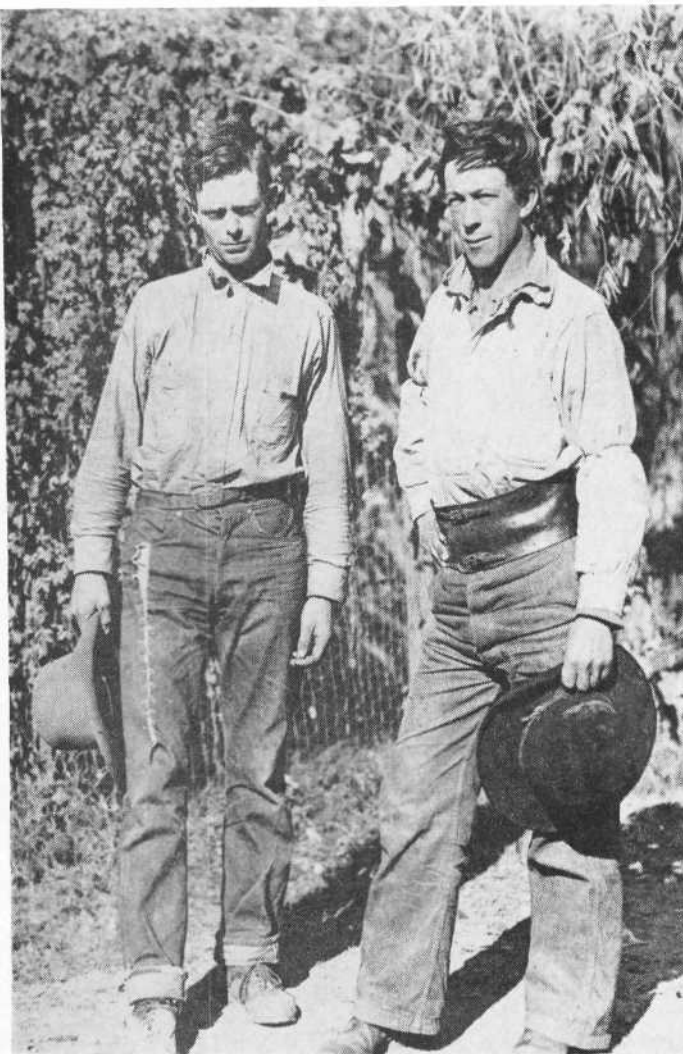
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The losers—Tom Green, who was hanged for the killing of Bowles, and Paul Case who received a life sentence for his part in the robbery.



The winner—Ace Gardner has been a peace officer on the frontier most of his life and at 73 is still active as the constable at Coolidge, Arizona.

Ace Gardner on the Trail . . .

Two movie cowboys thought it would be easy to hold-up the only bank in the little settlement of Blythe, California. They figured it would be a simple matter to evade the "country police" in such a remote community. But one of the "country police" happened to be Ace Gardner . . .

By RANDALL HENDERSON
Historical photos from the scrapbook
of the Gardners at Coolidge, Arizona

AT 3:45 ON THE afternoon of December 2, 1913, just before the Palo Verde Valley Bank at Blythe, California, was to close for the day, two roughly dressed riders hitched their horses to the rack on the street and entered the door.

The only occupant of the bank was William A. Bowles, the cashier.

Drawing their guns, the strangers demanded all the cash in the vault. Bowles, aged 52, had spent most of his life on the frontier and had witnessed gun-play before. The money was in his trust and although unarmed, he was not going to surrender it willingly. He grappled with one of the robbers and a shot was fired to frighten him. In the meantime the other hold-up man was gathering up all the currency he

could find and stuffing it in one of the bank's canvas bags.

Then the men demanded that the cashier go into the vault. With two six-guns pointed at him he backed slowly toward the big safe, and then turned and made a sudden dash for a door on the side of the building. As he opened the door another shot was fired and Bowles fell through the doorway, a bullet through his neck. He died four hours later without regaining consciousness.

The events of that afternoon 42 years ago in Blythe are vivid in my memory, for I was a witness of what transpired following the robbery. I was across the street in the office of C. B. Reynolds, pioneer real estate and insurance man, when the first shot was

fired. In those days, when it was possible to shoot a meal of quail or doves within a block of the Blythe main street, gunfire was no novelty, but when a second muffled shot was heard a minute later we went to the door—just in time to see two men, one of them carrying a bag, mount their horses and gallop down the street toward the mesquite and cottonwood jungle along the Colorado River four miles away. Blythe had less than 300 inhabitants at that time.

We saw the cashier lying in the doorway and hurried across the street, found the bullet wound as soon as we opened his shirt collar, and hurried him to a private home where Dr. William Chapman, the town's only physician, did what he could to save the man's life.

In the meantime the alarm had been given and a posse of volunteers began rounding up horses and weapons, and within 30 minutes they were in pursuit of the robbers. But the trail led down the levee and into heavy brush, and



Ehrenberg on the Colorado River in 1905. Once an important boat landing for miners and stockmen, the town was abandoned in the 'twenties, and the adobe walls have now crumbled away. More recently new buildings have been erected for the quarantine inspectors stationed here by Arizona.

chase was given up when darkness came.

The law in the Palo Verde Valley at that time was represented by Asa F. Gardner, 30, constable and deputy sheriff. "Ace" Gardner was a former Texas cowhand who had won top prize in steer roping at the Nogales rodeo in 1903, but who preferred the range to the show business. He had come to the Palo Verde Valley in 1905 as range boss for Benton and Gray who were running cattle along the river under a lease from Frank Murphy and A. L. Hobson.

Later when Murphy and Hobson brought in irrigation water from the Colorado River and opened Palo Verde Valley to farm settlement, the cattle business faded, and Ace took a job on the irrigation system. He was a fearless frontiersman and a fine marksman, and when the settlers in Palo Verde Valley decided they needed an officer to maintain order in the new community, they elected him constable and secured his appointment as deputy sheriff of Riverside County. Neither job paid much salary, and since Ace

had a wife and children, he continued his work for the water company.

On the afternoon of the robbery, he was foreman of a mule and fresno outfit grading levees along the river. A rider was dispatched from Blythe to inform him of the robbery, and he hastened back to town and began organizing for the man-hunt.

One of the volunteers on the posse was Charles Utting who had served in the Spanish-American war as one of Teddy Roosevelt's Rough Riders, and had later been appointed deputy United States Marshal in Arizona. Utting recently had moved to Blythe to open a new branch lumber yard for E. F. Sanguinetti of Yuma. He was one of the finest marksmen in the desert country and, like Gardner, came from the mold that makes good frontier officers—cool, fearless and intelligent.

Gardner dispatched armed volunteers who had been deputized for the emergency to guard the ferry crossing at Ehrenberg, to patrol the Parker area to the north, and to watch routes out of the Palo Verde Valley to the south.

Within a few hours after darkness the river bottom was virtually surrounded with armed men.

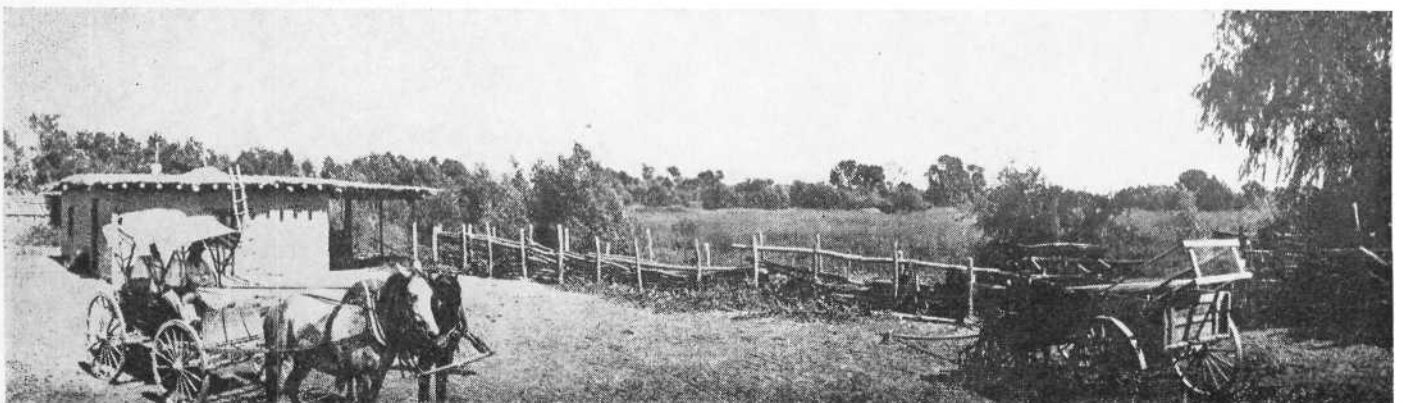
At daybreak the following morning Gardner and Utting on saddle-horses headed into the thickly wooded river bottom to take up the trail of the robbers.

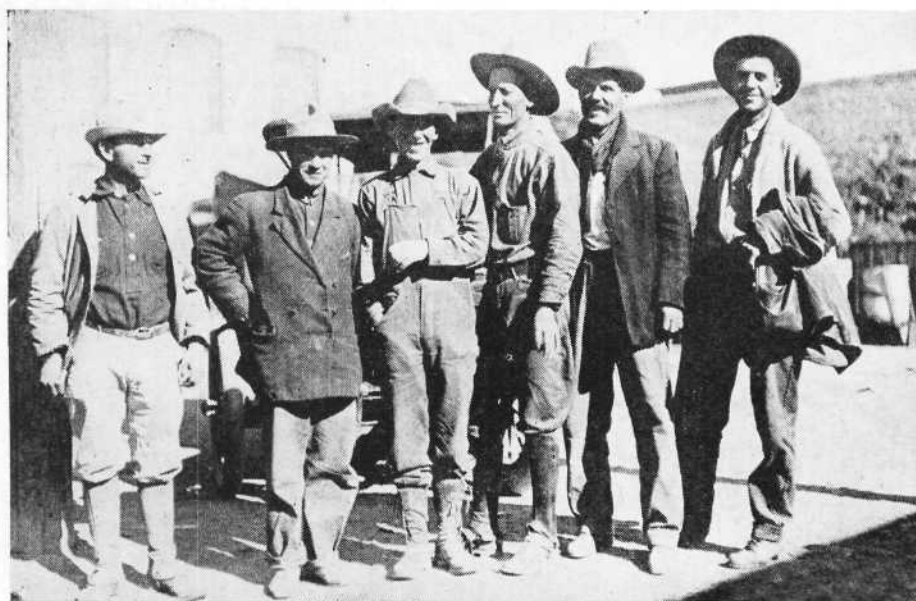
Recently I spent an evening with the Gardners at their home in Coolidge, Arizona, where Ace at 73 is still a vigorous and highly efficient constable. He recalled the details of the 48-hour man-hunt which ended in the capture of the robber-murderers. It is one of the most amazing stories in the annals of desert law enforcement.

"I knew those men would be in trouble as soon as I found their trail leading into the river bottom," Ace said. "They would be boxed in on one side by the Colorado River, and on the other by the long deep estuary known as Palo Verde Lagoon.

"We had no difficulty in following their tracks in that area. There were three of us on the trail that day. Utting and I had been joined by L. F. Norton, a homesteader, and we never lost the

The adobe home in which the Gardners first lived when Ace went to the Palo Verde Valley as boss of a cattle outfit.





Some of the members of the posse which combed the river bottom in the hunt for the robbers. Left to right: Elmer Layton, George Woods, Constable Ace Gardner, Charles Utting, Alex Gardner and Fred Springer.

trail. But the mesquite and cottonwood and arrowweed is so dense it would have been possible to approach within 100 feet of the men without seeing them.

"We followed the trail at several places to the edge of the Palo Verde lagoon. The water is deep and the banks muddy, and evidently the men were afraid to try to swim their horses across. Finally they had doubled back north to go around the upper end of the Lagoon. I had posted deputies at this point but somehow the men had slipped through. When darkness came we were sure we were only a few hours behind them.

"The men were headed south, and the only road out of the Palo Verde Valley in that direction was the stage route to Glamis, on the Southern Pacific 60 miles south of Blythe.

"We camped that night at Palo Verde when it became too dark to follow the trail, and Utting and I resumed the chase as soon as it was light enough to see. The tracks were not always easy to follow. The men kept away from the road much of the time, and in places where the trail crossed rocky terrain there was only a misplaced pebble occasionally to indicate their passage. But in this arid desert country men and animals must go to waterholes sooner or later, and since they were heading south their destination must be either Yuma or the Imperial Valley.

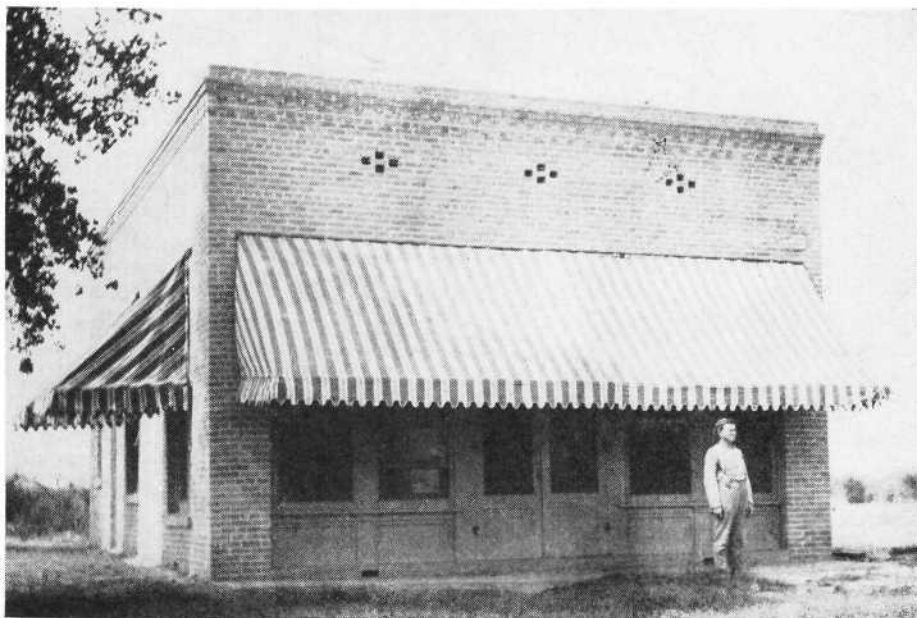
"Unless they rode all night, they would not be many miles ahead of us, and we thought we might at anytime see them going over a distant ridge ahead of us. If we caught up with

them, we were certain we would have to shoot it out with them.

"But the robbers also were riding hard, and we lost time when Charley's horse gave out and we had to make an exchange of animals with Dewey Hall, a freighter we met on the road.

"At Glamis, we were met by Sheriff Mobley Meadows of Imperial County, for we were now in his domain. The tracks of the horsemen we were following detoured Glamis and headed across the sand dunes toward Imperial Valley.

The old Palo Verde Valley bank at the corner of Hobsonway and Broadway in Blythe—now replaced by a service station. This picture of Cashier William A. Bowles was taken just a few weeks before the bank was robbed. When the robbers tried to force him into the vault he made a break for the side door on the left side of the building. When he was shot he fell through the doorway, part of his body on the ground outside the building.



It was easy to follow the trail in the soft sand.

"At one place in the dunes we came to a little valley where the men evidently had stopped to rest for a while. While we were crossing the sand hills we were overtaken by Alex Gardner and Fred Springer who had been with one of the several posses on the man-hunt.

"It was dark when we reached Holtville and we had lost the trail when we came to the cultivated area. But soon after we arrived there two deputies from Sheriff Meadow's office in El Centro arrived and said they had seen two horses with saddles, grazing on a ditch bank just outside of El Centro.

"I suggested that we go and see if we could identify the horses.

"But none of us have ever seen the animals ridden by the robbers," one of the Imperial Valley officers said. "How can we identify them?"

"I'll know the horses when I find them," I told him. "Those men have been riding hard for 48 hours, and I'll know the animals when I see them."

"We rode toward El Centro, and when we reached the ditch where the saddle horses had been seen, we divided our party and approached from both sides. It was dark and we did not want to use flashlights, but finally I could see the dim outlines of one of the horses. I crept up to where it was standing and lifted its feet one at a time.

"I had been following those footprints for two days, and I knew that

one of the animals had an injured hoof. It wore No. 00 shoes on three feet and No. 0 on the left hind hoof.

"This was one of the animals I had been tracking—there was no doubt of that.

"Sheriff Meadows posted two of his men in the darkness to watch the horses, and Charley and I accompanied the Sheriff and Hi Anderson, one of his deputies, to El Centro. Utting and Meadows took one side of the main street and Hi Anderson and I the other



Mary Gardner—she has spent most of her life pioneering on the South-western frontier.

side, inquiring at the rooming houses about a couple of men who may have registered that night.

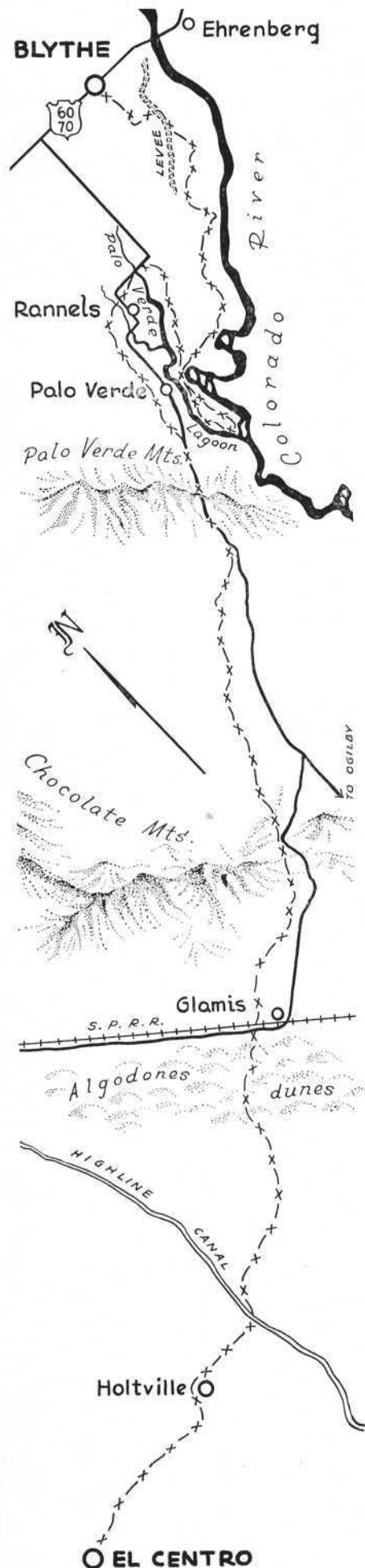
"I was sure the men had some torn clothing and possibly scratches after their all night ride through the mesquite jungles along the Colorado River.

"It was near midnight when Meadows signaled us to join him at the Franklin Hotel. The proprietor told us two men had registered about nine o'clock, and that one of them had a long scratch across his face. The owner gave us a key to the second floor room and we went upstairs.

"Meadows quietly unlocked the door and we went in, and in the dim light saw two men sprawled on the bed asleep. I walked around to the far side of the bed. The barrel of a revolver was protruding from under the pillow. I seized the gun, and yanked it out, and this awakened the man.

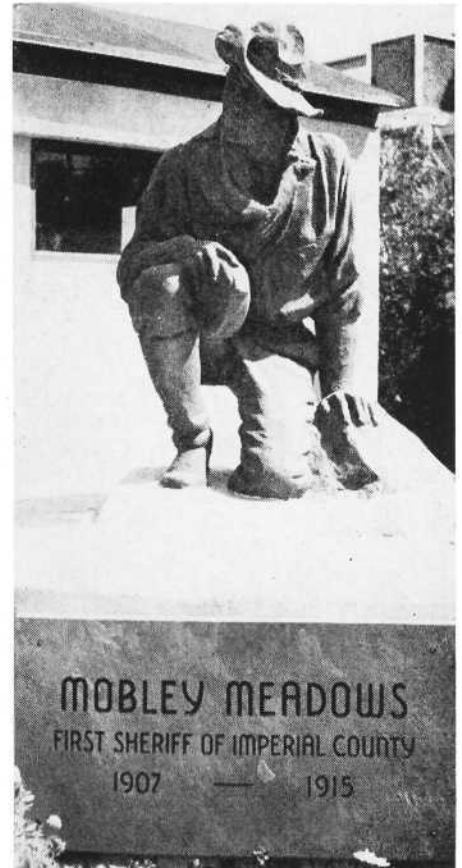
"Surrounded by four officers with drawn guns, the men offered no resistance. They were taken to the county jail and later transferred to the county prison at Riverside. Every penny of their loot—the \$4446 taken from the bank—was found in the canvas bag

Trail of the robbers from Blythe to El Centro is marked by the -x-x- line.



labeled 'Palo Verde Valley Bank' under the mattress between them."

Although this crime was committed 42 years ago, Ace Gardner had recalled the details as vividly as if they had happened yesterday. He told the story simply and with no reference to hardship and hazard involved in that grueling 60 mile ride from Palo Verde to Holtville in a single day—always following those tracks and constantly under the tension of a possible encounter



This statue of former Sheriff Mobley Meadows stands on the grounds of the Imperial Mid-Winter Fair at Imperial.

in which they would have to shoot it out with two well-armed gun men.

The men talked freely with their captors. They admitted they were novices at robbing banks. They had worked at various times as teamsters, mule-skinners, cowhands, and finally as extras in the movies. In the movies they had taken part in some bank-holdup scenes, and they decided that it would be easy money to stage a real hold-up at some remote settlement where there were only "country cops" to deal with. They did not know that when they selected Blythe as the stage for their crime they were going into the territory of two of the keenest officers in the Southwest.

At first they gave their names as Paul Darling and Paul Case. Later

Darling said his name was Tom Green, and it was learned that he had a previous record as a counterfeiter.

On January 3, 1914, the men were brought to trial in the superior court at Riverside. An attorney, H. L. Thompson, had been appointed by the court to defend them. But there was no defense for a crime in which the evidence was so conclusive. They pleaded guilty and on January 14 Judge Densmore sentenced Green to be hung at San Quentin, and gave Case a life term. The death penalty was carried out April 3.

Green admitted just before his death that this was not his true name. "My mother and father were good people," he said. "They raised me properly and gave me every advantage. I want to go to my death with my identity unknown. My parents know nothing of this and I don't want them ever to know. I am sorry I killed the cashier, but I fired before I realized what I was doing."

A \$1000 reward which was offered for the capture of the robbers was divided equally between Gardner, Utting, Mobley Meadows and Hi Anderson. Ace also received a check for \$100 from the Sante Fe railroad, and the offer of a job as a private officer for the company, but he chose to remain in Palo Verde Valley.

He remained as peace officer in Blythe until 1916 when he had an opportunity to acquire a cattle ranch in the Galurio Mountain 60 miles north of Willcox, Arizona.

Mrs. Gardner is no less a pioneer than her husband. She accompanied him into the Palo Verde Valley from Imperial in 1905 as a bride. They crossed the Algodones sand dunes in a buckboard before there was even a plank road connecting Imperial and Yuma Valleys. They had to hack their way through the mesquite to reach the little adobe house which was their home when Ace was boss for the Benton and Gray cattle outfit. Their three sons were born in the Palo Verde Valley.

When they moved to the Arizona cattle ranch they again had to build a road to their remote homesite. Eight years of drought put Ace out of the cattle business, and he went to Florence, Arizona, first as guard and later as assistant warden of the state prison. When the town of Coolidge began to grow, the Gardners went there—and again found themselves pioneering in a new community.

Ace went there as deputy sheriff and later became chief of police. Because of his knowledge of the desert and his uncanny skill in following dim

trails across the wasteland he has been called up more than once to help state police in their man-hunts.

The Gardners observed their 50th wedding anniversary last year.

Charley Utting, who shared with Ace Gardner the credit for the capture of the Blythe bank robbers, has been dead for many years. But at 73 there is still the glint of the cool, fearless

frontier officer in the eyes of Ace Gardner.

Americans are enjoying comfort and security in the desert today because a generation ago there were men like Ace Gardner and women like Mary Gardner who were willing to face hardships and defend law and order while they built the foundations for enduring communities.

Desert Quiz:

This quiz is just a little game to be played by eager, curious minds. You'll probably miss some of the answers, but it is worth while to make the effort anyway. If you answer less than 10 questions correctly, you are still in the tenderfoot class. A score of 15 rates you as a well-informed student of the desert. A score of 18 or better is very exceptional. The answers are on page 44.

- 1—In the wildlife of the desert the Roadrunner is — A lizard _____. Bird _____. Species of antelope _____. Rodent _____.
- 2—Window Rock, Arizona, is on the reservation of the—Navajo _____. Hopi _____. Papago _____. Pima _____.
- 3—The community of Chimaya in New Mexico is famous mainly for its —Pottery _____. Ceremonials _____. Beadwork _____. Weaving _____.
- 4—The Indian mission at Ganado, Arizona, is—Catholic _____. Mormon _____. Presbyterian _____. Episcopalian _____.
- 5—The gem stone most commonly used by desert Indians in making jewelry is—Agate _____. Turquoise _____. Onyx _____. Malachite _____.
- 6—Oliver LaFarge is best known as—A writer _____. Indian trader _____. Mining engineer _____. Colorado River boatman _____.
- 7—Furnace Creek Inn is located in — Nevada's Valley of Fire _____. Bryce Canyon, Utah _____. Grand Canyon National Park _____. Death Valley _____.
- 8—The *Balsa* was used by primitive Indians—To kill game _____. To pacify their gods _____. For transportation on water _____. As a shroud for the dead _____.
- 9—The Enchanted Mesa of New Mexico, according to legend, was occupied in prehistoric times by the—Zuni tribesmen _____. Acomas _____. Apaches _____. Penitentes _____.
- 10—The color of the blossom of the Encelia, or Incense Bush, is — Pink _____. White _____. Yellow _____. Lavender _____.
- 11—Azurite is an ore of—Iron _____. Aluminum _____. Zinc _____. Copper _____.
- 12—Palm Springs, California, is located at the base of — Telescope peak _____. San Jacinto peak _____. San Geronio peak _____. Monument peak _____.
- 13—Water taken from the Colorado River to serve the Los Angeles Metropolitan area is pumped from—Lake Mead _____. Lake Mojave _____. Lake Havasu _____. Imperial dam reservoir _____.
- 14—Meal used by the Hopi and other desert tribesmen in ceremonials generally is made from — Corn _____. Mesquite beans _____. Chia seed _____. Pinyon nuts _____.
- 15—Salt River valley in Arizona gets its water supply mainly from — Coolidge dam _____. Hoover dam _____. Roosevelt dam _____. Elephant Butte dam _____.
- 16—Dick Wick Hall's famous frog that never learned to swim lived at—Yuma _____. Searchlight _____. Salome _____. Wickenburg _____.
- 17—The town of Earp on the Colorado River was named in honor of a frontier marshal who became famous in the mining camp of — Tombstone _____. Goldfield _____. Rhyolite _____. Jerome _____.
- 18—Peralta is a name associated with the—Lost Pegleg gold _____. Lost Dutchman mine _____. Lost Breyfogle silver _____. Lost Dutch Oven mine _____.
- 19—Betatakin is the name of a well known Indian cliff dwelling in Arizona _____. Utah _____. New Mexico _____. Colorado _____.
- 20—General W. T. Sherman signed the treaty that established the Navajo Indian reservation in 1868 at — Bosque Redondo _____. Washington _____. Albuquerque _____. Window Rock _____.

Diving Owls of Borrego Valley

By PERRY STOWE
Photo by James Dixon

NOW OR WHEN those two owls became so well educated, I'll never know. But as the bright headlights of my car swept along the road in Borrego Valley, California, one of them shot down out of the darkness, skimming along in front of the car in hot pursuit of a tiny silver mouse which had dashed across the highway from the attraction of my lights. That time the big bird's sharp talons missed the mouse by inches and it zoomed up into the dark air again. From the corner of my eye I saw it alight on the top of a telephone pole.

No sooner had it settled on its pole than another owl left a perch on a pole close ahead, soaring out over the road as my lights approached. It circled to within 15 feet of the car, but finding no mouse, returned gracefully to its pole.

There were no more owls as the car moved through the soft desert night on the road which passes the Ensign date ranch. I marveled that these two hunters of the air had observed how all nocturnal creatures lose their heads before the glare of approaching lights and expose themselves in such an abnormal manner. Or, were these owls just a coincidence?

I was watching closely the next night as I returned to my trailer at the Pegleg Monument Campground. At exactly the same place, on the same poles, were my two owls. No mice appeared this time, but each of the birds made a careful circle over the briefly lighted pavement and back again. I now knew this was no matter of chance. The pair had learned to hunt in a most modern fashion.

Several months passed before I made camp again at the Pegleg marker. I entered the valley in the daytime, but as I returned from El Centro that night I traveled my usual road past the Ensign ranch. I shouldn't have been astonished when ghostly wings plunged in a power dive and snatched up a racing rodent. This time it was not a mouse but a tiny kangaroo rat, *Dipodomys deserti deserti*—not really a rat, but a relative of the gopher. And then came the second owl from its pole—once again the unlucky hunter.

I regretted the tragic death of the little victim. I like the Dipo, with its baby face and baby manners. I had once uncovered the burrow of a Dipo family and the babies had squeaked like a litter of new puppies. Perhaps no other creature is so perfectly

Most wise owls look down their hooked beaks and hoot at modern civilization. But this unique pair has decided on a different approach. There is a course of using society to their own advantage. They have adapted to modern living, discovered a new way of hunting rats and mice and because of their ingenuity are perhaps the best-fed owls in Borrego Valley.



Young Barn Owls have typical white heart-shaped faces of adults, but are covered with fluffy soft down.

adapted to the desert. It takes no liquid in its diet. It forms water internally by oxidation of the starch it eats. It doesn't even use water to bathe. Dry sand removes the oils of its fur and keeps it fluffy.

That was three years ago, but the owls are still there. I have since seen them on several occasions.

Recently I was prepared to get a better look. With a rubber ball in my pocket I drove along the road until I glimpsed one sitting atop its pole. I stopped the car, expecting it to make a swift exit. It did no such thing, but sat staring down at the lights with the impressive dignity of a diplomat. The white face and head and chest made me wonder if I had found a Snowy Owl, down from the Arctic on one of their occasional trips to our Southwest.

I took the ball from my pocket and sent it spinning along in front of the headlights. Instantly the owl dove for it, skimmed within inches of the ball and almost stood still for a quick inspection, then veered away into the darkness. But I had gotten a good

look at the golden-colored back; it was not a Snowy Owl, but a Barn Owl, sometimes called Monkey Faced Owl.

This owl is a flying mousetrap. Were it not for the Barn Owl and other creatures, mice would cause far more damage than they do. Its white heart-shaped face, whitish or pale cinnamon under parts and buffy or rusty upper plumage are identifying features of the Barn Owl from Washington to the Mexican border.

I muffled my laughter at the owl's futile flight after the ball and drove the car down the road a mile to give the big fellow time to recover. Driving slowly back, I noted the dignified fellow still sitting on the pole. I stopped the car and sent the ball out ahead once more. It sat quietly with unmoved decision, refusing to be made a fool of again.

I believe these owls to be always the same pair. Their size does not change and I find no evidence of offspring being trained in their methods. There is something eternal and unchanging about them.



Potholes, once one of the Southwest's great placers, shown in this 50-year-old view, is thought to be on the site of Mission San Pedro y San Pablo de Bicuner. One survivor of 1781 massacre on the Colorado River says gold of Bicuner is buried near the foot of double peak seen on center horizon, now known as Squaw Peak or Sugarloaf. Photo courtesy Mrs. Clara Townsend, Yuma.

Hidden Gold of Bicuner

Historians have forgotten the story of the buried treasure of Mission San Pedro y San Pablo de Bicuner, but the legend of the earliest lost treasure in California history still remains. Is the gold buried near the site of the lost mission, at the foot of the picacho—or was it scattered into the mighty Colorado River to be lost forever? At one time no one cared about the gold—there were buckets of it to be found on both sides of the river; but now, the mystery is revived.

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

TWO ODDLY-MATCHED horsemen reined up beside a broken stockade and ruined adobe walls at the foot of a mountain spur nine miles northeast of Yuma, Arizona, on the California side of the Colorado River. One was a tall, heavy-set Indian of the tribe universally known as the Yumas, but who call themselves Quechans. The other was the famed Franciscan historian, Father Zephyrin Engelhardt. The year was 1886.

The Quechan gestured toward the ruins. "This was the other mission," he said.

Father Engelhardt stared with intense curiosity at the adobe fragments. More than a century before, in the late fall of 1780, the Spanish had established two mission-pueblos—San Pedro y San Pablo de Bicuner and Purisima Concepcion—in the low Colorado River valley.

Eight months later, July 17, 1781, the Quechans burned and pillaged the infant mission and towns and ended forever Spain's attempt to colonize the river valley. In that holocaust one of the Franciscan Brotherhood, Padre Francisco Garces, perished. With him were massacred the other Franciscan missionaries—Juan Antonio Barrancche, who was with Garces at Concepcion, and Juan Diaz and Jose Matias Moreno at Bicuner—together with the Spanish officer, Captain Rivera y Moncada, most of the soldiers and some of the settlers. No women or children were killed, and all the survivors were ransomed a few months later and returned to Sonora by the expedition commanded by Lt. Col. Pedro Fages.

Historians of Engelhardt's time and since have located one of these missions on Fort Yuma hill and the other several miles down the Colorado, prob-

ably near Pilot Knob. But when Engelhardt spent several months at Fort Yuma, then just recently turned over to the Catholic Church for an Indian mission school, he found a tradition among the Quechans that the second mission had been up river from Fort Yuma, not down.

He was investigating that tradition. But looking at the ruins to which the Quechan had led him, he could see no way of positively determining their age. They might just as well have been built by miners or emigrants he thought.

"You are certain this was the mission your people burned?" he asked.

"This is the place," said the Quechan. "The Mexicans came back here after it was burned and hunted for the gold."

"What gold?" Engelhardt demanded.

"The gold the padres hid before the revolt."

Engelhardt frowned. "The Franciscan missionaries had no gold!"

The Indian shrugged. "This is where they came to hunt for the gold," he repeated with finality.

Before he left Fort Yuma, Engelhardt was convinced the ruins he had been shown were indeed those of one of the unfortunate Spanish missions, and he published his conviction. Later

he changed his mind. But he had been right the first time. Led by the Quechan guide, he really had stood among the shattered remnants of unhappy Bicuner.

As for the Indian's story of the gold, Father Engelhardt merely repeated it, without belief. Later historians have not even mentioned it. Their reasoning is understandable. Almost every old mission in the Southwest and Mexico has its tale of buried treasure, with or without factual basis, and surviving records of the destroyed Colorado River establishments say nothing of gold.

Silence and rejection by historians did not stifle or check the story of the treasure of Bicuner. Today, 163 years after the Quechan revolt, every physical evidence of Mission San Pedro y San Pablo has vanished. But the legend of its buried gold—probably the earliest lost treasure in California history—remains as bright as ever.

The Quechan Indians hold to their account of the reason for the massacre. "Our ancestors worked the gold for the padres," they tell their prospector-miner-riverman friend, Ed Rochester. "The gold became a curse to them and they rose and killed the Spaniards and threw the gold away."

Oldtimers of the lower Colorado River valley—miners, prospectors and *rancheros*, Mexican and *norteamer-*

cano—believe in the existence of the gold. Their sources for the story go back, in some cases, to survivors of the 1781 revolt. And they say the gold was buried by the Indians or the Spaniards, not thrown away. Their faith in that belief can be measured by the long, laborious and fruitless searches many of them have made for the hidden treasures. Searches that were, in fact, largely responsible for the destruction of the ruins of San Pedro y San Pablo, though their final disappearance resulted from heavy Colorado River floods in 1916 and construction of the All-American Canal in the middle 1930s.

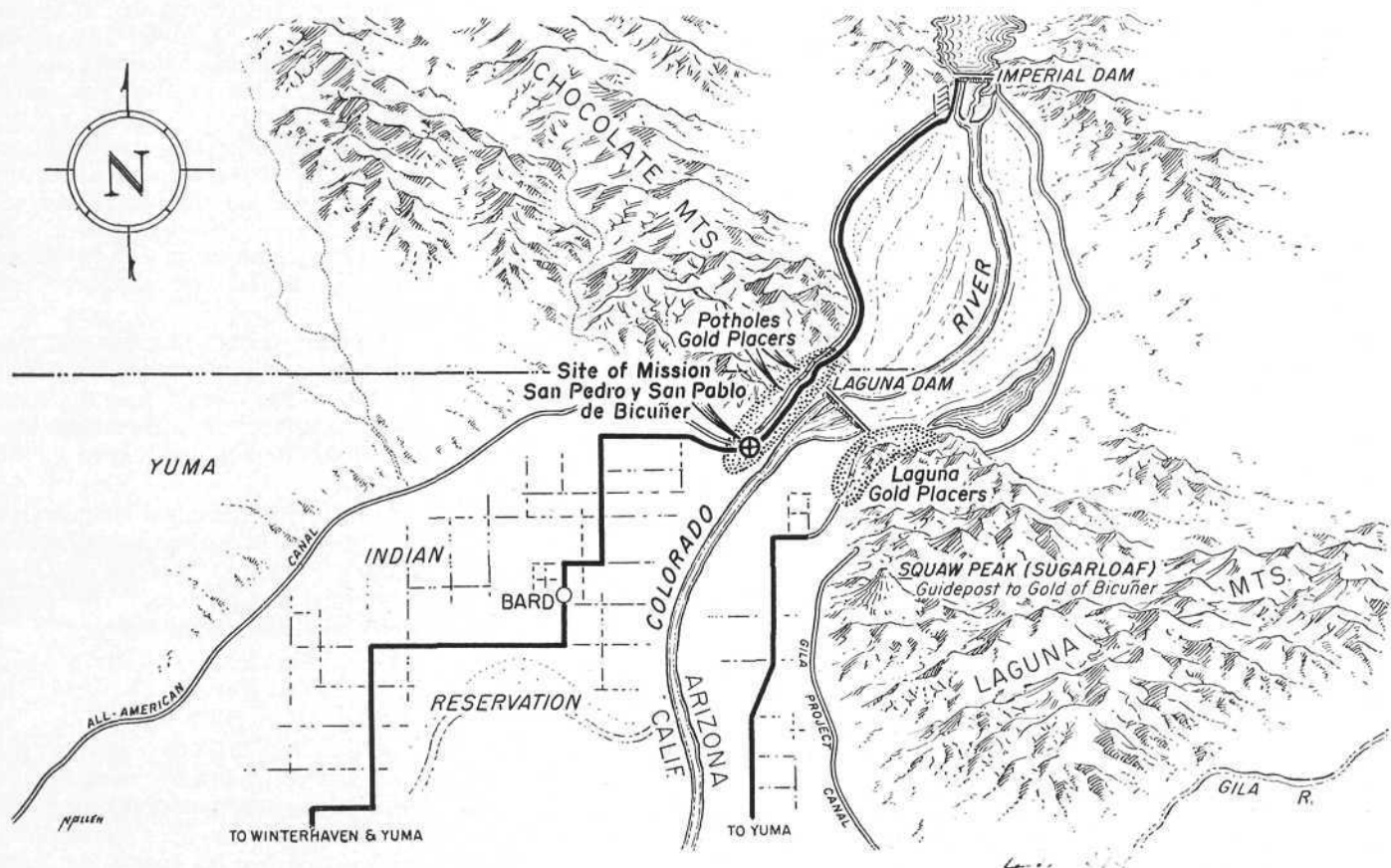
At first completely skeptical of this romance of lost treasure of a lost mission, I later accepted its possibility when I listened to men who knew the country and its minerals and when I learned how ancient the legend was and how widely believed. Perhaps the strongest evidence for the treasure is this: Gold did exist at San Pedro y San Pablo de Bicuner. The very foundations of the mission were dug in what later was part of the Potholes, one of the Southwest's great placers. Just across the Colorado, on the Arizona shore, were the even richer Laguna placers, extensively worked in the 1850s.

Jose Alvarado, of Yuma, remembers stories of those incredible Laguna

placers. "My grandfather had one of the good claims," he says. "My mother told me that when she was a girl at Laguna, my grandfather had buckets just sitting under the kitchen table—regular water buckets—filled with nuggets and placer gold. Everything was brought out from San Bernardino in big freight wagons in those days, and supplies were very expensive. But when my grandfather bought a sack of flour, he never weighed the gold for it. Just reached in a bucket and got a handful of gold. A handful of gold for a sack of flour. There was that much gold at Laguna!"

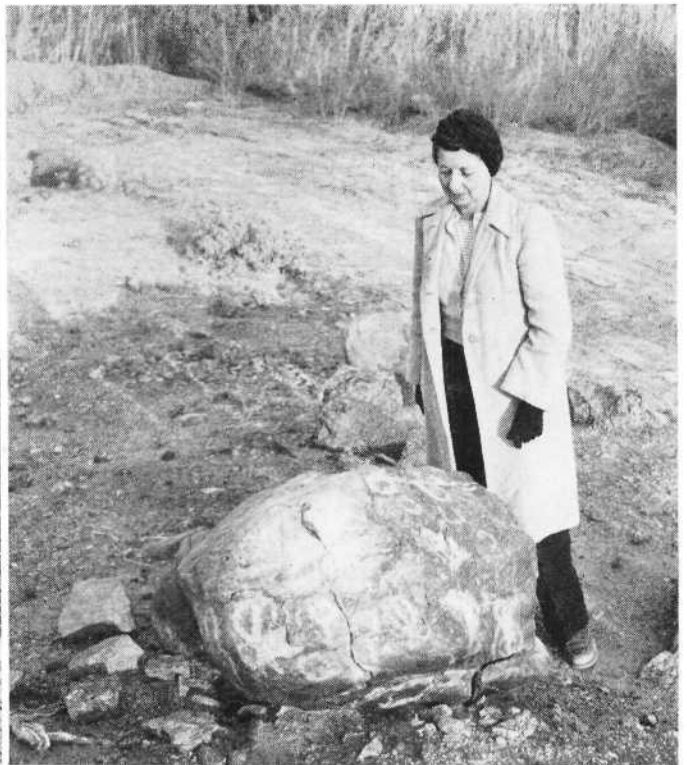
There is no reason to doubt that both Laguna and Potholes placers whose total production was several millions, were opened by Sonorans who came up from Mexico to hunt the buried gold of Bicuner. Were those first Sonoran colonists of 1780 looking for gold, and did they find it? If they found gold, there certainly was no opportunity to take any of it away before the Quechan revolt overwhelmed them.

Were they looking for gold? Thirty-six years before they came, in 1746, a Jesuit priest named Jacobo Sedelmayr had explored and was advocating settlement of that very region. "Although there are no known mines on the Gila and Colorado rivers," he wrote, "there is no lack of hopes and possibilities of





Shorty Mills, above, prospecting this area 40 years ago, discovered weathered adobe wall and two ancient fig trees on Colorado bottomlands, center right. Wall and trees were carried away by 1916 Colorado flood.



Rocks covered with petroglyphs near the present Potholes cemetery tend to confirm the Quechan story that a large Indian village once stood at this point, and may explain why Padre Garces picked the site for a mission.

their existence." His own mule drivers on his exploring trips had found float indicating mineral of good quality, and the likelihood of finding good mines was one reason for settlement, he wrote. So the Colorado River settlers would have been looking for gold.

Did the colonists—these men from a state famed for its miners and prospectors—discover they were living on golden ground? In 1828 Lt. R. W. H. Hardy, of the British Royal Navy, sailed up the Colorado River to the Yuma area. In his account of the voyage he wrote of "the reports which were spread, as it is supposed by the Jesuits, who formerly endeavored to make an establishment upon the river, of gold dust being intermixed with sand." Hardy mistakenly credited the Jesuits instead of the Franciscans for the missions and he was proven wrong in his expressed belief the gold dust was nothing but mica. But his account proves gold was reported upon the Colorado and in connection with the establishment of the missions.

Eleven years later Francisco Frejes wrote, in his *Historia Breve de la Conquista*: "The sands of the Colorado River are one continuous golden placer." By that time—1839—it is possible, of course, that the treasure-seeking Sonorans had discovered Laguna and Pothole placers.

But the earliest search for the treasure of Bicuner definitely on record was made from San Diego, California, in the spring of 1836. Its leaders were two Americans, Thomas Russell and Peter Weldon. Indians had been telling tales of the buried gold. "Or at least," says Historian Bancroft, who was never one to place faith in buried treasures or lost mines, "their stories about certain coins in their possession gave rise to a belief in such a treasure."

Russell was described by Richard Henry Dana, in his *Two Years Before the Mast*, as a "desperate loafer." He was "short, red-haired, round-shouldered, vulgar-looking" and "had lost one eye and squinted with the other." The treasure hunting expedition added nothing to his reputation, as the party returned empty-handed. But the *alcalde* of San Diego had been financially interested in it, and the Mexican officials had put in a formal demand for the treasure for the national treasury. And Russell and Weldon were thrown in the *calabozo* while the whole matter was investigated by the *ayuntamiento*, apparently on the theory the two had found something and were holding out. Russell's none-too-prosperous subsequent career would indicate that certainly he had not found much treasure.

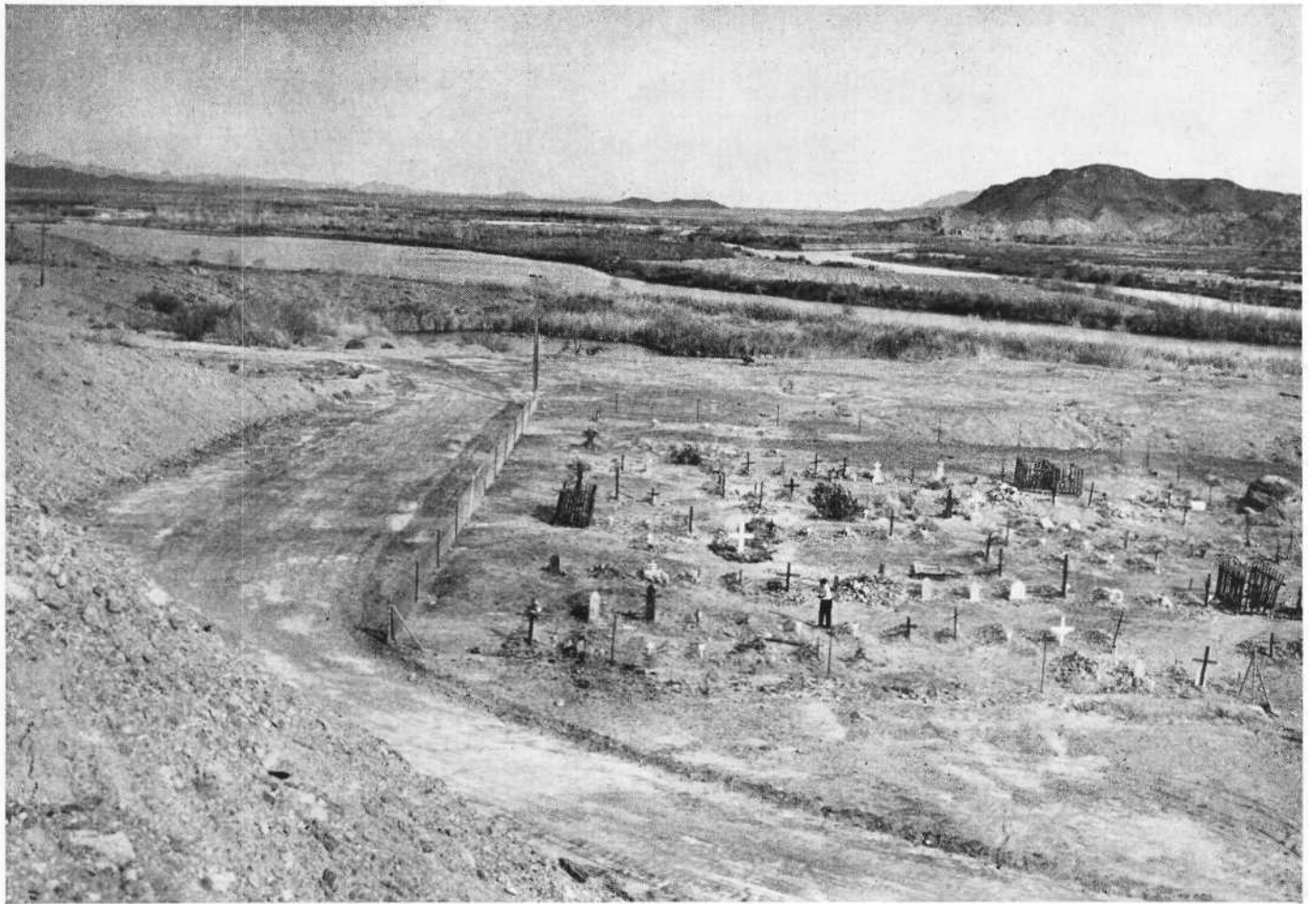
If anyone has found it since then, he has kept it to himself. Certainly hundreds have searched. Most of their

investigations centered around the mission ruins, for the commonly held belief was that the gold was buried under or near its walls. William G. Keiser, of Quartzsite, Arizona, who came to the Colorado River about 1898, is one who is definite about this. The padres knew trouble was coming, he says, and they buried a lot of gold in the corner of the mission.

"When I was at the Potholes in 1902," he explains, "three Italian priests came there. They had an old map made in Paris, and they were looking for one of the corners of the old mission. Some of the walls were

Top—Potholes cemetery was relocated to this site when construction of All-American Canal began. Bicuner is believed to have been about 500 feet north (left) of graveyard.

Bottom—The lost gold of Bicuner is believed to have been gathered from two of the richest placer fields in the Southwest: The Potholes (a little of which is shown lower left) on the California side of the Colorado River, and Laguna (center right) in Arizona. Laguna Dam, crossing the Colorado between the two, was the first major project of the U. S. Bureau of Reclamation, and was completed in 1909.



still standing then, but treasure hunters had dug them up so much you couldn't tell where the corners had been."

Shorty Mills, who placered at the Potholes and Laguna from 1916 to 1936 went with me to the present Potholes cemetery, about a mile south of Laguna Dam, and pointed out a place in the flat area below where he thought the lost mission had stood.

"Back in 1916 I found a long, low ridge down there that didn't look natural," he said. "Kicking around in it I uncovered adobe bricks. I found what was left of two old fig trees, too. But it was washed away in the flood of 1916."

But Shorty also dug up mud and wattle walls when he was prospecting in Coarse Gold Canyon just north of the cemetery, where the All-American Canal runs now. Father Felix Publowski, formerly of St. Thomas Indian Mission, believes that this was the site of Bicuner. It is possible that the buildings of the pueblo were in the flat and the mission higher up. Shorty's version of the treasure also is that the padres had advance hints of trouble from the Indians. They collected the gold, sewed it up in a cowhide and buried it at the mission.

"The padres gave the Indians a plate of beans for a plate of gold," a 97-year-old Mexican woman of Yuma told Mrs. Claude M. Clapp in 1938. "They rebelled and threw the gold in the river. When they were about to kill one of the padres he said every year at that time he would come back until full restitution was made. Once when I was a young girl, I went to the ruined mission on a moonlight night, to pray. I saw him walking there in his robes."

Mrs. Clapp, who was living with her husband at their mine a few miles from the mission site, told me that the Mexican woman had learned the stories from her grandfather. He could have been one of the survivors of the massacre.

It seems odd, though, that so many of these stories blame the Franciscan missionaries for making the Indians work the gold. For in the Colorado River missions, for the first and only time in Spanish colonial policy in the Southwest, the religious fathers were without power to enforce duties on Indians or Spaniards, or to punish or reward them. Under this untried plan of Teodoro de Croix, Commandante-General of the Provincias Internas, pueblo and church were divided. Government and punishment were the business of the military command.

There was neither fort nor presidio. The soldiers were settlers also, living with wives and families among the

other settlers, in houses of uniform size upon surveyed town lots. Indians, in theory, could have homes and lots among the Spaniards. In practice, the Spaniards appropriated the best Indian lands. Though it was strictly against the King's orders, the military did not punish them for it, but did punish the Indians when they became unruly, putting even their leaders in stocks. The Franciscans blame the Quechan revolt upon this plan of De Croix's, and upon the fact that the missionaries were merely "ornaments."

If the gold of Bicuner really was buried under the now vanished mission, or if it was thrown back into the river, as some stories assert, it is indeed a most hopelessly lost treasure today. But Jose Alvarado of Yuma, asserts that neither was the case. Don Jose told me a story which come in no more than three re-tellings from a youth who was one of the survivors of the attack on Mission San Pedro y San Pablo.

"This old man who told me," Don Jose explained, "was the son of the man who heard it from the freed Indian captive, down at Altar. When the people of Altar were going up to the Colorado to look for the gold, this fellow who had been captive said: 'Do not look at the mission. There is nothing there. The gold has been taken across the river.'"

"He told them: 'When the Indians had killed the priests and the soldiers, they set fire to the mission. They took the gold out of it and carried it across the river and down to the big peak.' That's on the Arizona side. Picacho, we call it. When they got over there to the flat in front of the picacho, he said, the chief called the Indians from all over that country. They held a big pow-wow for a week. Then they dug a hole and put the gold in a rawhide bag, and they dumped the bag in the hole and filled the hole by pushing the dirt in with their feet. Then they tramped it down and walked all over it. In a week you wouldn't know where it was buried."

"This old man who told me, he was a young boy when he came over with his father to Laguna, on the Colorado. They called it Laguna because the river filled up a big lake there. His father came to look for the buried gold. But they didn't look for it because there was so much gold right there in the sands. After a rain, he told me, you could just see it yellow—nuggets and gold just yellow on the ground. Why should you hunt for buried gold when you could get all you wanted without?"

"But forty, fifty years later this old man did go up to the mission. He

went with an Italian who wanted to know if the story about the mission was true. He told the Italian there was nothing there. But the fellow said, 'Well, we're going up anyhow and dig the whole thing out and see.' This, if I remember, was about 1898.

"So it took them 30 days to clean all the rubbish out of that ruin. They cleaned up every room. And they found bones and burned hair, but not a penny in gold. But in one room they did find 12 holes about a foot deep in the floor, which looked like they might have held jars. But the holes were empty. Like the captive boy had said, the Indians had taken all that gold out and over the river."

The Arizona peak which Jose Alvarado called the picacho—landmark for the buried gold of Bicuner, according to the captive boy—is named Sugarloaf on the Laguna quadrangle of the U.S.G.S.

"Local placer miners call it Squaw Peak," Ed Rochester informed me. "If you view it from the northeast, say from the county well on Arizona Highway 95, it presents a perfect cone. The oldtimers used picacho to designate any sharp-pointed isolated hill, identifying any particular picacho by giving its geographical location. The Quechans call this particular peak *Veequal-sist*, and say it is one of their elder statesmen turned to stone."

Ed himself still favors the story of his Quechan friends: that the Indians threw the gold into the river. "Why should they take it over into Arizona and bury it," he asks, "when there was more lying around right on the ground on the Arizona side?" Which is a logical question. Not understanding Quechan psychology, I can only suggest that if Spanish greed for gold did cause the revolt, then that gathered gold in the minds of the Indians might be the symbol of their trouble, and they might have tried to hide it forever.

Probably other early arrivals at the Laguna and Potholes placers felt as Jose Alvarado's friend did. Why hunt buried gold when plenty is on hand to be washed out? But as the years passed and the gold-bearing gravels were worked and reworked and return from them diminished (In the depression years a man was lucky to make a dollar a day!) men thought more and more of that hidden gold. Today it would be a treasure indeed. The first, the best, the biggest nuggets picked up 163 years ago from the untouched surface richness of those incredible Colorado River placers—the wonderful lost gold of Bicuner.

Strange Plants from Desert Lands

Many desert plants are noted for their beauty when in bloom; others for their unique adaptability to a strange land. Here are some of the oddities created by the struggle for existence in this arid country—plants that store water for years, fungus-like plants typical only of moist climates and viscous plants that snap shut when touched, sinking their claws deep into the flesh of an unsuspecting animal. Such plants as these are reasons for calling the desert a mysterious place!

By EDMUND C. JAEGER, D.Sc.
Curator of Plants
Riverside Municipal Museum
Sketches by the author

DESERT PLANTS and animals, while in the process of adapting themselves to their peculiar arid environment, have developed some very odd forms and habits which excite the interest of persons tramping over desert wastelands in quest of curious things to see.

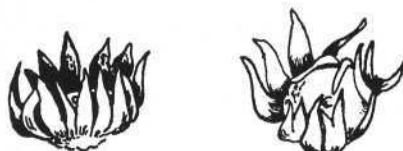
Ordinarily we do not think of deserts as places where toadstools, puffballs and other fungi flourish. But sometimes after heavy spring rains or summer cloudbursts have generously poured water over the land, a large club-shaped fungus four to six inches high springs up from the sands and advertises itself by its glistening white spore bearing heads. It is called Farlow's *Podaxis* by the botanists.

I remember one wet winter season long ago when along many miles of the Southern Pacific Railroad right-of-way literally hundreds of thousands of the beautiful glarry-white forms gleamed like myriads of polished ivory stakes in the Colorado Desert's bright sunshine. Even later when dried they still were wonderful to see and in this state lasted for many weeks.

After summer cloud bursts the same fungi may appear along roadside borders where temporary pools of water have dried up but left the ground moist and covered with a layer of clay and debris. Notable summer stands of them may sometimes appear along the highways between Indio and Blythe, California, and between Yuma and Gila Bend, Arizona; also between Barstow, California, and Las Vegas, Nevada. These strange relatives of the edible mushrooms derive their nour-

ishment from small bits of dried and decaying vegetation which lie buried under the moist sands. Most of the millions upon millions of infinitely small spores which are shed from each of the individual fungus heads never germinate but the few that do must often wait years for the correct combination of opportune circumstances to start their growth.

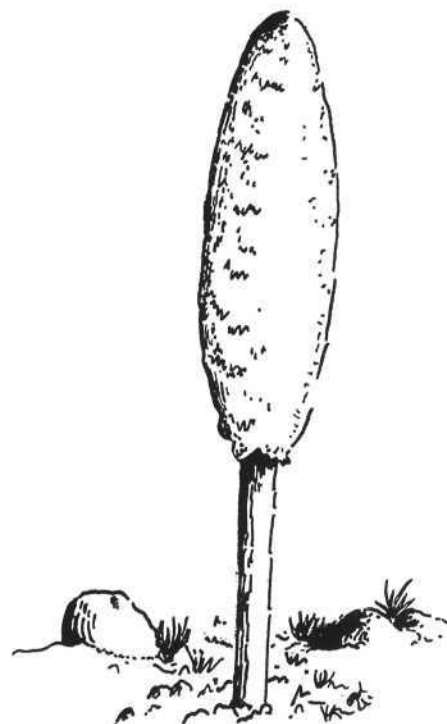
While writing of fungi I must not fail to mention the curious little Earth-star (*Geaster*) found frequently on the



Earth-star

ground in the low-tree forests of junipers and nut pines of the desert mountains. This small-sized puff-ball is seldom noticed until the outer cover of the ripening spore-case splits into five or more petal-like lobes which turn back until lying flat and reveal the globular, brown, thin-walled true spore-case within. Later, millions of exceedingly small, finer-than-dust, brownish-black spores, come out through a small hole at the top of the ball-shaped sac to be scattered far and wide by the wind.

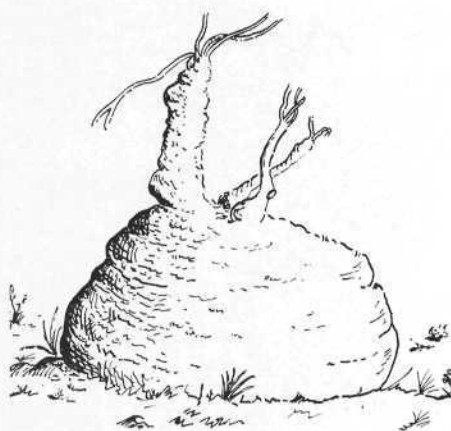
On the desert plains of Sonora and in similar situations in parts of Baja California grows that remarkable drought-resisting plant called melonita



Farlow's *Podaxis*

by the Mexicans and *Ibervillea sonoriensis* by the botanists. The big heavy bulbous root, often as much as half exposed, is always surprising for it has much the appearance of a giant one or two feet broad leathery-skinned turnip protruding from the ground. From the top may project upward, like crooked necks of giant bottles, eight-to-10 inch long fleshy stems from the tops of which grow one to several shoots of slender-stemmed vines. The trailing branches of these climb, with the aid of tendrils, to the very tops of trees under which the plant has its root. *Ibervillea* belongs to the gourd family and we are not surprised to see it having broad leaves cut into narrow divisions and deep cup-like flaring yellow flowers. The numerous fruits which develop and which hang in profusion among the tree branches like Christmas-tree ornaments, appear like little scarlet melons each about a half inch in diameter.

The huge root which is said to have exceedingly bitter flesh is an extraordinarily efficient water storing device. In a land of fitful and uncertain rainfall it accumulates great stores of water whenever it can, in readiness for dry years. This stored water may be expended very slowly. During periods of prolonged and serious drought, when less than three inches of rain have fallen, the trailing vines have been observed sprouting up from the giant root each summer for several years,



Ibervillea sonoriensis

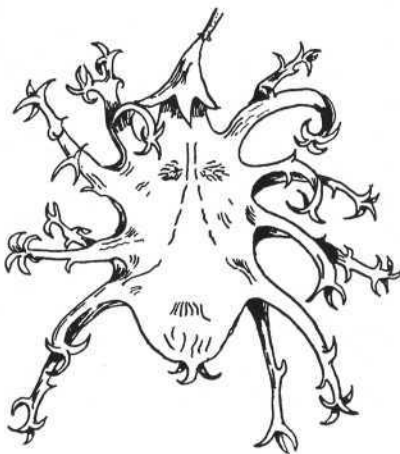
then later blossoming and bearing good crops of fruit. This unique record compares well with the growth story of certain drought resisting gourds of the dry, hot, Kalahari Desert of South Africa.

There has recently fallen into my hands a book entitled *Kalahari Sands*. It was written by Frank Debenham, well-known geographer of Cambridge University. In it he tells of that remarkable Devils Claw or Grapple Plant of the desert lands occupied by the Kalahari natives, who call it the "hooked horror." It is known among botanists as *Harpophytum procumbens*. It is really a melon but so changed in its evolutionary course for the sake of seed dispersal that its fruit looks not at all like any normal melon, gourd or pumpkin, nor even like any of the nearly-related spiny wild cucumbers. The ground-creeping vine on which it grows has deeply cleft, melon-like leaves, handsome bell-shaped deep-lilac flowers. The fruiting vessel is a small flattish melon with 16 arms springing from its periphery, each furnished at its end with numerous sharp hooks.

The arms of the melon when ripe are springy and if a grazing animal happens to put its foot or mouth on the central portion of the swollen melon-body, the arms quickly yield and cause the scimitar-like hooks suddenly to spring up and sink deep into the animal's flesh. So tenaciously does the hooked melon hang on to the nose that cattle are said to go mad with torment and the native gazelles, called Springbok, only rid themselves of the vegetable horror when fastened to their feet by jumping more than ever and in due course smashing it in bits, thereby scattering the seeds far and wide.

On our southwestern American deserts we have the counterpart or pseudo-mimic of this in a plant sometimes called Devil's Claw (*Martynia*). It is a perennial herb with roundish, heart-shaped leaves and springs fourth after summer rains from a dormant root. It grows to be a sizeable plant in a very short time. Soon the dome of leaves is covered with spectacular deep-throated, bell-shaped, brilliant yellow flowers, followed by odd, elongate, flask-like, beaked, green fruits. When ripe these fruits easily break off and the beaks split to form pairs of sharp-pointed, flaring, curved horns. The seed vessel is now very aptly called a devil's claw or devil's horn.

The strong sharply ending hooked claws may fasten to the legs of grazing animals and in this way provide for the wide dispersal of the seeds. Should



Grapple Melon

they fasten to the nose of the feeding animal the sharp hooks could cause infection.

Papago Indian women gathered the long hooked datura seed capsules in quantity and by weaving them together made a temporary dome-shaped supporting frame to help in building their hollow out-of-door ovens. Over and amongst the cage of interlocking datura seed vessels a thick layer of clay was placed. A fire was then built inside, burning out the datura pods but leaving intact the clay walls and roof of the oven. This process of oven building is all efficiently shown by an exhibit at the Arizona-Sonora Desert Museum at Tucson.

Hardly does a flower season pass without some one bringing to me or writing to me about a dark-purple des-

THE KALAHARI DESERT

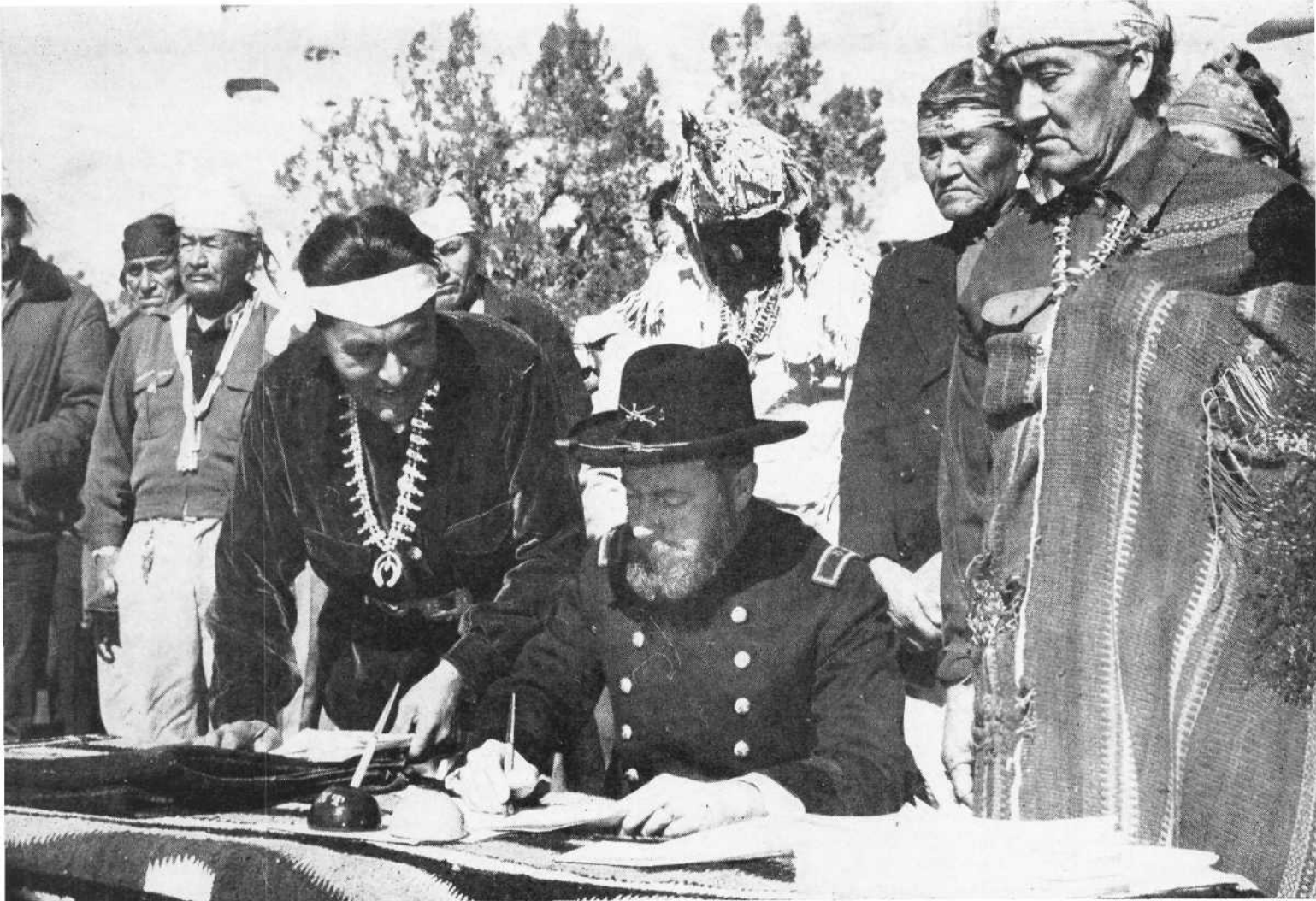
The Kalahari Desert is part of the immense inner table-land of South Africa at an elevation of over 3000 feet. This desert, sometimes called "the southern Sahara," has a surface soil mainly of red sand. The surface is undulating, dunes representing the crests of the waves. Next to the lack of water the chief characteristic is the large representation of tuberous and herbaceous plants including many kinds of melons, both bitter and sweet.

This is the home of a race of negroid people with thin legs and arms. They belong to the Bechuana tribe and are excellent hunters and farmers and are known for their clever ways of finding water and subsisting in a thirsty land. At certain times of the year their greatest source of water is found in melons, both wild and cultivated.

ert snow-flower they have found growing in the sands. This of course is no snow flower but I'll admit that the superficial resemblance is sufficient to mislead the novice. The plant they refer to is the purple-flowered, fleshy, thick-stemmed *Orobanche* belonging to the Broom Rape Family. Like the red snow-flower of the mountains it is parasitic on the roots of other plants. I am told that the early California Indians used to roast and eat it much as they did the Sand Food known to botanists as *Ammobroma*.

Devil's Claw





*Grim faced Navajos enact the signing of the Treaty of 1868, with Jack O'Connor, Gallup, New Mexico, as General William T. Sherman, and Navajo Councilman John B. Simpson, as Chief Barboncito, Navajo leader of 1868.
Photo by George C. Hight.*

Water is Urgent Need of Navajos . . .

IN 1868 after the Navajo Indians had spent four years under the guard of U.S. soldiers at Bosque Redondo as a penalty for the violation of earlier treaties, General W. T. Sherman was sent West to negotiate a new treaty with them.

Gen. Sherman told them Washington was willing to send them back to their own country, but they must promise never to murder or steal again. Each family was to be given a yoke of oxen and a plough, and a white farmer would be sent to teach them. They would also be given rations and blankets until they got started again.

*The Head Chief said:

"No, all we want is an old buck goat. We will tie him by his horns to a pinyon tree and let him butt it with his head until he is dead. That will

show our younger men what it is like to fight against the government."

The treaty was signed. The young men had learned their lesson, and for the most part the Navajo Indians have kept their part of the treaty.

The signing of this momentous document, which ended many years of warfare between the Navajo Indians on one side, and the Pueblo Indians, the Mexicans and American troops on the other, was reenacted at the Navajo headquarters at Window Rock, Arizona, in January when the Indians assembled to stage their Enemy Way ceremonial. Actually this was a modern version of the ancient War Dance of the Navajos.

Under the terms of the original treaty the federal government was to provide a school for every group of 30 children, and the Indians agreed to send all their members between six and 16 years to school. Implements and seeds were to be given to every head of a family who selected 160 acres of land as a home and began farming.

An appropriation of \$150,000 was provided to re-settle the Indians on the reservation established for them and the United States government was pledged to deliver to the agency each year for 10 years goods to the value of five dollars for each Indian.

Since the Navajos had always been herdsman rather than farmers, and much of the land allotted to them was wholly unfit for farming, it was not a realistic agreement — and has never been carried out.

More recently, however, the Indians have learned that a dam in the San Juan River is estimated to provide water to irrigate 125,000 acres of their land. The Indians want the dam built without delay. They need it, and the Ceremonial at Window Rock was staged as a demonstration to bring their needs to the attention of state and federal legislative bodies, and to enlist the interest of Americans generally in the urgency of their need.

*Quotation from Anton C. Damon in Mary Roberts Coolidge and Dane Coolidge's *The Navajo Indians*.



Typical Spanish architecture is reflected in the Ajo railroad station, terminus of the Tucson, Cornelia and Gila Bend Railroad, an offshoot of Southern Pacific at Gila Bend.

Their Grubstake is in Copper..

By THOMAS B. LESURE
Photographs by David Rees

AN ODD NAME in the midst of strange sounding places, the birthplace of American copper mining in Arizona, one of the nation's largest copper producers, a gateway community to desert vacations and a possible ghost town of tomorrow — that's Ajo, Arizona.

No one really knows who named Ajo. Some authorities think it was Lieutenant William Emory on one of his westward expeditions; others say it was a group of miners who started American copper operations there 100 years ago; still others claim it goes back farther — perhaps to the Spaniards who once worked the copper diggings.

What would happen to Ajo, Arizona, if the copper mines should play out tomorrow? Residents of the garlic city won't talk about it. They refuse to believe their town, with its mixture of Indians, Mexicans and Whites, could become another western ghost town: they live for today.

However, it is known why the name Ajo (Spanish for garlic) was chosen. The area around the town is prolific with a plant called the Ajo lily or wild garlic, whose bulb has a definite onion or garlic taste.

Ajo (pronounced ah'-ho) has had

a long and varied life. In 1854, an expedition sent from the West Coast by the Arizona Mining and Trading Company gave the town its birth. The group worked the site for five years—fighting Indians, Mexicans, lack of water, transportation problems and high production costs—then turned up its heels and left.

Ajo slumbered until the late 1800s when a St. Louis stock promoter, A. J. Shotwell, formed the Rescue Mining Company supposedly to work the mines. But like many speculators, Shotwell was more interested in fast money than in mining copper. Then, too, there was never enough high grade ore to justify his glowing predictions of profitable production. So most of the ore stayed where it was—in the low-slung hills around the town.



Giant electric shovels resemble toys in the 550-foot deep open copper pit which has made Ajo the nation's third-ranking copper producer. Open pit method began in 1917.

The real hero of Ajo came upon the scene in the early 1900s. He was Colonel John C. Greenway, former Rough Rider and an expert in mining low grade ores. Unlike Shotwell, he was interested only in mining copper on a non-speculative basis. With the help of the noted mining engineer, Dr. Louis D. Ricketts, he found a new leaching process that enabled him to mine profitably the low-grade carbonate deposits. Mining operations, using the now famous open pit methods, began in 1917.

Today Ajo is the nation's third largest copper producer, being surpassed only by the operations at Morenci, Arizona, and those of the Kennecott Company in Utah. It is a modern town of 7000 friendly, forward-looking people. Yet, on a recent visit, my wife and I found that, in many respects, it still reflects the guiding hand of Greenway who planned the community in 1916.

The center of town is still the verdant, palm-lined Plaza surrounded by Spanish-style, arcaded business build-

ings. As recently as 1948, Greenway's original plans were used to complete the Plaza's western wing of buildings. The homes, which radiate from the Plaza to the low foothills of the Little Ajo Mountains, are still owned in great part by the Company (now the Phelps Dodge Corporation which runs the big New Cornelia Plant). We found that an early admonition by Greenway still is a dominant philosophy of the copper operations. He cautioned: "Your Town Agent should be warned against making statements as to future developments that are not conservative."

As we approached Ajo on State Route 86 west from Tucson the first thing we noticed was the tall, ever-smoking stack of the New Cornelia smelter, rising starkly above a gleaming, 740-acre, mesa-like pile of tailings. This is a trademark of Ajo, a symbol of its whole being, for the chief reason for Ajo's existence is the production of copper.

A short distance south of the smelter, reached by a five minute drive

from the Plaza, is another symbol: the huge open copper pit gouged more than 550 feet into the earth on the site of Old Ajo. We made it our first stop.

From the visitors' overlook near the edge of the mile-wide pit, we could see almost a dozen giant electric shovels and heavily loaded ore trains looking like miniature toys inside the pit. Some of the trains crawled along the terraced benches while others waited to be loaded with ore. Later we learned that the open pit mine operates more than 30 miles of track and that in the course of each day some 80,000 tons of rock are hauled from the pit to the nearby copper works. Last year, more than 24,000,000 tons of rock were mined, of which about 9,500,000 tons were milled. Since 1916, the copper operations have removed more than 310,000,000 tons of rock!

Most of the ore, less than one percent copper, is in the form of chalcopyrite and bornite scattered in thin veins among gray colored rock called monzonite. Once it is taken from the



The Ajo main square was planned by former Rough Rider Col. John C. Greenway.

pit, it is hauled to a crushing plant and reduced to fine powder. Bubbling flotation cells, filled with water and chemicals, free the copper. Then, after further concentration, the ore goes to the reverberatory furnace and converters of the smelter. The final product, cast in 700-pound anodes for shipment, is almost pure copper with traces of gold or silver.

The mining and ore reduction processes consume more than a billion gallons of water a year—an almost prohibitive figure for such an arid region. The secret is one of the country's most unusual wells, located 650 feet below the surface about six miles north of town. It was discovered almost 40 years ago by Greenway's men who cut through a thick lava cap and hit a seemingly inexhaustible supply of water. Later, large underground rooms were cut into the sub-surface rock, pumps were hauled down and set up, feeder shafts were extended from the main cut and a pipe line was laid to Ajo. Now the well daily supplies 5,000,000 gallons of water, naturally heated to 102 degrees — enough to meet the needs of both mining operations and the town.

The Phelps Dodge Corporation provides good, low-rent housing (\$28.50 a month for a three bedroom house) as well as low-cost public utilities. It has built a modern, well-equipped hospital, insures medical care for its workers and their families, has helped to give Ajo one of the best school systems in Arizona, recently donated a \$165,000 swimming pool for community use, and contributes toward programs

for recreation. The people, on their part, often instigate programs of their own accord.

Recently the residents formed the Ajo Roping Club when a group of miners and business men wanted a place where they could do a little roping and bull-dogging. They brought in some Brahma calves, built an arena and in 1953 staged their first rodeo. Charles Rasmussen, one of the club members, told us:

"We surprised ourselves. The word just sort of got around—and before we knew it we had top men from all over the Southwest taking part in the rodeo. It was a huge success."

Perhaps the best illustration of the town's community spirit is the annual Christmas celebration started about 35 years ago. Phelps Dodge men cut the biggest pine they can find, erect it in the Plaza and decorate it. Residents contribute whatever time or money they can. Then on Christmas Eve, Santa Claus—to the accompaniment of colorful floats, carol singing and good fun—distributes gifts and goodies (provided by the townfolk) to the waiting children.

"It's really a sight to see," Meade A. Cole, secretary of the chamber of commerce, told us. "People come in from miles around—just like a county fair. Why last year alone we gave out presents to more than 3000 children!"

Add to these such regular activities as those provided by sportsmen's clubs, service groups, fraternal organizations, veterans' groups, two motion picture theaters, a golf course, square dance

clubs, women's organizations, and the Carnegie Free Library — and there's plenty doing the year around in Ajo.

Much of Ajo's community life, of course, revolves around its pleasant Plaza. On the concrete apron around the bandstand, we saw kids roller skating or playing tag. Townfolk streamed in and out of the nearby New Cornelia Cooperative Mercantile Store or other shops—and we were just as likely to hear them speaking Spanish or Papago as English. Thus we learned that Ajo is a polyglottous community where hints of the Old West remain amid today's modernity.

We saw evidence of less pleasant concepts, too. Like segregation in housing. We heard of mining families who, coming from towns without segregation, were startled to find a policy that calls for definite sections for Mexicans, Indians and Anglos. Local residents tried to explain it away to us by saying either "the company was stuck with the policy (begun by Greenway)" or "too many of the older folks still remember the days of Pancho Villa and the Mexican border incidents." But the fact remains: As long as segregation exists, there's room for improvement.

One thing I wouldn't want to improve upon, though, is the opportunity for unusual vacationing around Ajo. Eastward lies the two and one-half million acre Papago Indian Reservation; southward are virgin desert areas of Organ Pipe National Monument and the fine fishing grounds of Rocky Point, Mexico.

Take the Papago Reservation, for

example, where the "bean people" live in towns like Cowlic, Kaka, Gu Vo, Kom Vo and Chukut Kuk. One could spend an entire vacation exploring its off-trail sights — isolated villages of squat adobe and wattle homes; jutting, 7740-foot Baboquivari Peak, home of old Indian gods; cliff dwellings like Ventana Cave, said to have been inhabited some 25,000 years ago; the strange, legendary Well of Sacrifice (*Desert*, July, 1953); and the fascinating basketry and handicraft exhibits or the fast-moving Indian rodeo each fall at Sells.

Southward Organ Pipe National Monument and Rocky Point are developing rapidly into first rate tourist areas. According to Ranger Theodore W. Barnett, with whom we talked during our visit to the area, the number of visitors to this largest Arizona national monument has doubled within the last three years. He said that an average of 9000 persons a month are going through the section.

Much of the increase probably has been due to the growing popularity of Rocky Point on the Gulf of California. Fishermen have found that it is not only inexpensive (accommodations are four dollars and up a day; boats for five dollars and up per person per day), but also tops for deep sea angling. The catch may include cabrilla, swordfish, yellow tail, red snapper, jew fish, albacore, mullet, sea trout and almost a dozen other fighters.

Organ Pipe, on the other hand, is practically virgin desert country despite a 40-mile scenic loop and a couple of lesser dirt roads within the monument area. Tops on the botanical parade, of course, is the rare, fluted Organ Pipe cactus. But also one sees the strange, bewhiskered senita, the Corona de Cristo, smoke trees, desert willow and such desert standbys as palo verde, ironwood, saguaro, ocotillo, creosote bush and mesquite. This is also the habitat of the sluggish Gila Monster, as well as the desert peccary, bighorn sheep, antelope, deer and a wide variety of colorful birds. Historically, this desert is loaded with old prospect holes, remnants of the dreaded Camino del Diablo blazed by Father Kino, and the lore of explorations by Diaz and other Spanish pioneers. Scenically, it offers majestic mountains, fern-clad cliffs (at Dripping Springs), far-flung desert reaches and rocky canyons.

All of which brings us to one final point about Ajo. What of its future?

John W. Leonard, who made a survey on the town for the University of Arizona's Bureau of Business Research, flatly told us that "if the copper mines shut down today, Ajo would

be dead tomorrow." Recently another writer called Ajo a "ghost town in the making." The people of Ajo, however, seem to view the matter less drastically. While they don't say much about the time when the mines might have to shut down for lack of ore, neither do they seem afraid of the future. They have a confidence in their

town, engendered perhaps by their progressive community spirit. It seems to say, "We'll take that matter up when the time comes."

I can't help feeling that when that time does come—even though the odds for survival are against them — the people of Ajo will come up with something to keep the town going.

New Law Terminates Government Control of Many Indian Tribes

Less government control of Indian affairs was one major development in the Bureau of Indian Affairs during fiscal 1954, Secretary of the Interior Douglas McKay said in his recently released annual report.

Public Law 280, passed during the year, brings most Indian lands in California, Minnesota, Nebraska, Oregon and Wisconsin under the criminal and civil jurisdiction of the states, while recommendations to drop all Federal supervision over certain groups of Indians were not acted on during the year, except in the case of the Menominee near Green Bay, Wisconsin. The Menominee was given until December 31, 1958, to prepare for termination of trusteeship and special services and to develop tribal plans and programs.

According to Secretary McKay's report, other termination bills were enacted after the fiscal year. These covered the Klamaths and the coastal Indians of Oregon, small bands of Utah Indians, the Uintah-Ouray group and the Alabama Coushatta tribes of Texas.

A congressional bill to transfer all of the Bureau's health activities to the United States Public Health Service passed after the fiscal year, but another move to transfer the agricultural extension program to the Department of Agriculture failed to pass.

Three outstanding Indian problems were noted in the report as having held Commissioner Glenn L. Emmons' attention. These were (1) accommodation of all Indian children of school age at the earliest possible date, (2) provision of better health protection or preventive medicine service in Indian homes and communities, and (3) creation of greater opportunities for Indian economic advancement.

On the Navajo Reservation the Navajo Emergency Education Program was organized with a goal of providing accommodations in 1954 for 7000 more children than the 14,000 already enrolled. The plan, already in effect and due for completion in 1955, is to

enlarge existing schools on and off the reservation, build new schools, place children in public schools in large towns on the fringe of the reservation, build dormitories to house children and send trailer schools to the more isolated communities.

Preventive medicine activities were expanded, the report reveals, and by the end of the year 58 hospitals were in operation with a total authorized bed capacity of 2840.

Secretary McKay planned economic aid by organizing a non-profit corporation to conduct privately-financed economic surveys with an eye toward providing increased economic development and Indian employment chances in and around several of the major reservation areas.

During the year 2165 Indians were directly assisted to relocate under the Bureau's relocation program. This included 1649 persons in more than 400 family groups and 514 unattached men and women. In addition, more than 300 left without assistance to join family and friends.

Income to the Indians from mineral leases, principally oil and gas, reached an all time high of more than \$34,000,000, about 36 percent higher than the 1953 figure. Of the 667 miles of reservation roads graded or surfaced during the year, 487 miles were transferred to county highway departments for maintenance.

NEW CALIFORNIA DESERT PARKS URGED BY PROTECTIVE COUNCIL

At an afternoon meeting at Cottonwood Springs in the Joshua Tree National Monument, the Desert Protective Council passed a resolution asking the Riverside county supervisors to appropriate \$9,000 in matching funds to enable the California State Park to acquire Box Canyon, Hidden Springs Oasis and Painted Canyon in the Colorado Desert as a state park. The Council also asked that the Paiute Buttes area on the Mojave desert be included in the state park system.

'Everything Was Peaceful...'

By BERTHA H. FULLER

DURING THE early 1920s truckloads of cacti, yuccas and other shrubs of the desert were being stripped from their native habitat on the Southern California desert and hauled to Los Angeles where dealers were selling them for ornamental purposes. It became quite a fad—to have rock and cactus gardens planted with desert species. Cactus gardens are still popular, but today they are supplied largely with plants grown by the nurserymen.

It was during this early period that the great bajada at the base of the Little San Bernardino Mountains in Riverside County, known as the Devil's Garden, was virtually stripped of its luxuriant growth of yucca, bisnaga and ocotillo. The area has never recovered from the devastation of that period.

One day one of the truck drivers with a load of barrel cactus was stopped by an attractive, stylishly dressed woman who asked many questions. She wanted to know from whence came the cactus, who had authorized its removal, and where it was going. She went so far as to remonstrate with the driver for vandalizing the desert landscape. Nature, she said, had spent ages creating those hardy shrubs. They belonged to the desert, and no one should disturb them.

But she learned that the man was within his rights. There was no law at that time to protect the desert vegetation.

The woman whose indignation had been aroused was Minerva Hamilton Hoyt, social and civic worker of South Pasadena. A natural leader, with a deep sense of justice, Mrs. Hoyt was an indefatigable worker when there were wrongs she felt should be corrected.

Out of that incident and other similar occurrences came the determination to do something about this wilful removal and destruction of desert flora.

It was too late to save the Devil's Garden—but to the north, on an expansive plateau fringed with mountains, and still inaccessible except to the hardiest travelers, was a native forest of Joshua Trees and other Upper Sonoran zone vegetation growing among fantastic rock formations.



Mrs. Albert Sherman Hoyt. Her love for the desert lead eventually to the presidential decree setting aside 840,000 acres of desert wilderness as the Joshua Tree National Monument.

Thus was borne the idea of the Joshua Tree National Monument.

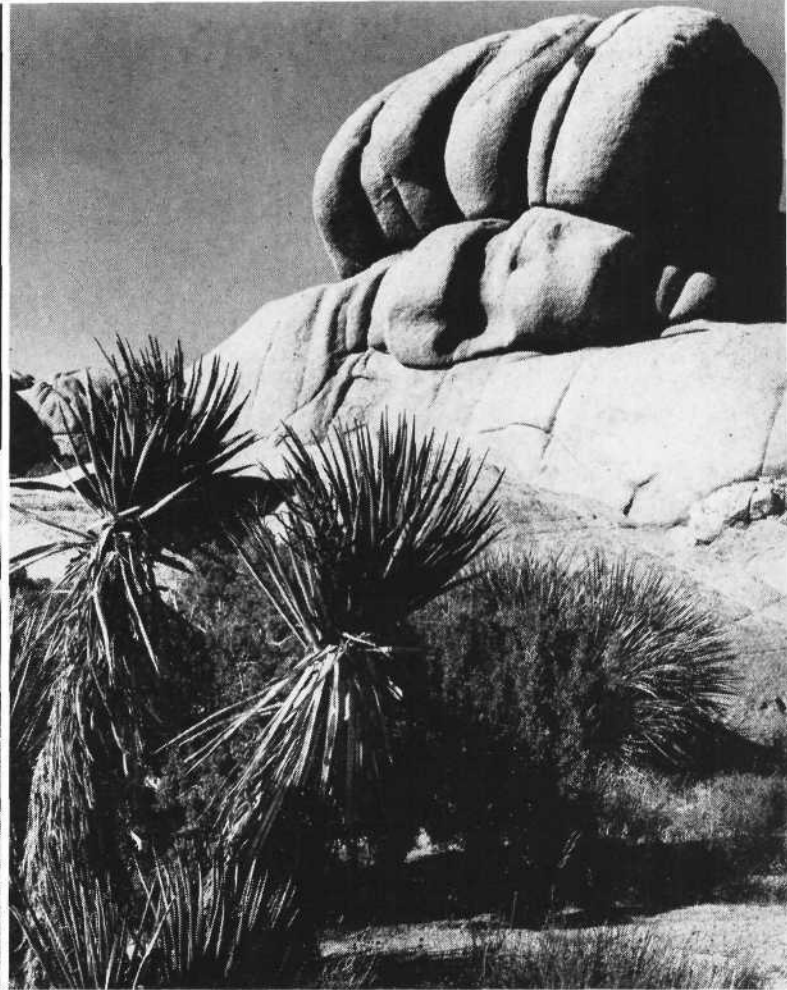
Mrs. Hoyt, with characteristic energy and enthusiasm, began to acquaint the rest of the world with the natural beauty of this place. She organized the International Desert Conservation League—and remained its president until her death.

The purpose of the League was to arouse interest in the values of the desert all over the world, and to conserve them. She prepared exhibits of the flora and fauna and scenic rock formations of the desert and largely at her own expense arranged for the showing of these exhibits in New York,

Washington, Boston, Mexico City and finally in London.

She gave lectures whenever she had the opportunity, using illustrated slides to show the natural beauty of the areas she was seeking to preserve. Mrs. Hoyt was not a glib, talkative woman. But she had a very deep feeling for the desert and her sincerity made a lasting impression on those who heard her. Sometimes when she spoke, it was necessary for her to pause for a moment to gain control of her own emotions and her listeners were following her so closely they were able to supply the words she was unable to say.

She was awarded medals and cita-



The Joshua Tree forests and the Wonderland of Rocks within the area set aside as Joshua Tree National Monument are now accessible with good roads and equipped with spacious camp grounds for visitors.

tions, and her work attracted widespread interest. Mexico sent her a beautiful silver tray, England sent gifts she cherished, and in 1930 she was made an honorary life member of the Royal Horticultural Society.

In 1935 she took her crusade to Washington — to secure the setting aside of 830,000 acres to be known as the Joshua Tree National Monument. It was largely through her personal effort, and the interest she aroused, that on August 10, 1936, President Franklin D. Roosevelt issued the order establishing the Monument. Approximately 185,000 acres within the Monument was privately owned, and the National Park Service is still in the process of acquiring title to these private lands.

After nearly 19 years, Mrs. Hoyt's fine contribution to the preservation of the desert is to have deserved recognition. Sponsored by Joshua Tree Women's Club, California, a memorial plaque is to be unveiled at 1:00 p.m. on May 30, Memorial Day, at the high point in the Monument known as Salton View, formerly called Keyes' View. In charge of the dedication program is Mrs. Jean Rees, curator of the sponsoring club.

The bronze plaque with an embossed frieze of Joshua Tree and mountains, bears this inscription:

Honoring
MRS. MINERVA HAMILTON HOYT
1866-1945

To her interest and diligence
credit is due for the establish-
ment of this National
Monument

*"I stood and looked. Everything
was peaceful, and it rested me."*

Joshua Tree Women's Club
California History and Landmarks
Club
Mrs. Hoyt's loving family and friends
Donors
May 30, 1955

Born on a cotton plantation near Duran, Mississippi, March 27, 1866, Mrs. Hoyt grew up in the environment of southern aristocracy. Her father was Joel George Hamilton, and her mother's maiden name Emma Victoria Lockhart.

Her family was active in defense of the South during the Civil War, and her father was a member of the Mississippi state senate for many years. After completing her advanced schooling at Ward's Seminary in Nashville, Tennessee, she studied music in the conservatories in Cincinnati and Boston.

She was married September 5, 1891,

to Albert Sherman Hoyt of New York. He was a physician and financier. There were four children, Charles Hamilton, Charles Albert, Ruth (Mrs. Leroy Sanders) and Julia (Mrs. Wade Griswold).

In 1898 the Hoyts moved to Pasadena, and Mrs. Hoyt immediately became active in social and civic affairs. She was a leader in many cultural movements. She was president of the Boys' and Girls' Aid Society of Los Angeles County. She organized music and art groups in Pasadena, and became president of the Los Angeles Symphony Orchestra. She and her husband became acquainted with the desert, and there they found peace and rest from the arduous interests at home.

Her attachment for the desert was such that she referred to it constantly in her lectures, and it was a line often repeated on the lecture platform that the Joshua Tree Club women selected as the inscription for her memorial plaque: "I stood and looked—all was peaceful; it rested me . . ."

In her 79th year, in July, 1945, Mrs. Hoyt was seriously injured in an accidental fall in her home. She never fully recovered and passed away in December of that year. She was buried in Mountain View Cemetery, Pasadena, beside her husband and one of her sons.

New and Improved Products for Desert Living

Air Conditioner Fits Every Auto

Borders-Shaw, Inc., 6912 Hollywood Blvd., Hollywood 28, California, has introduced a low-price automobile air-conditioner that fits any car. The Smiley Air Conditioner draws fresh air from outside the car, washes and cools it, making the interior up to 35 degrees cooler. Main unit of the system weighs 48 pounds, fits in the forward area of the trunk. Outside air intake is through chrome scoops, with twin ducts feeding the air inside above the rear seat. Ducts are high enough to avoid drafts. Water is added as needed.

Handy "Trail Gazer" Magnifies Road Maps

Just slide the handy "Trail Gazer" over your road map and 45 miles of route are magnified at once (approximately 540 square miles). The magnifying lens is lucite, unbreakable, with the rest attractively enameled 24-gauge metal for durability. It follows your route too—just slide it along the map. At \$1.00, the "Trail Gazer" promises to pay for itself after the first wrong turn avoided. Leybourn Specialties, 2105 Adams St., Toledo 2, Ohio.

Auto Wastebasket Is Made for Clean Roads

The answer to dirty highways and trash in the car is the new product of the Janan Company, 5670 Wilshire Blvd., Los Angeles 36, California—the Chuk-It, handy automobile wastebasket. The plastic bag is so designed that it hangs from the dashboard of any auto, but swivels out of the way when not in use. It is made of fire-proof, washable, waterproof, 12-gauge plastic, can also be used for carrying

maps and other items. Priced at \$1.00, it can be obtained by mail from the Janan Company.

Car, Room Cooler Is Now Portable

A new process of evaporative cooling is used in the latest portable car and room cooler, product of Qwickool Products Co., 5555 W. Manchester Blvd., Los Angeles 45, California. No excelsior is used in the new cooler, but lanes of cellulose sponge are used between the intake and discharge area, with a 1/15 H.P. motor which drives a Torrington blower. The unit weighs just 8¾ pounds and rests handily on the seat of the car, or can be used on 110 volt current in the home or office. Water capacity is seven quarts. List price: \$49.50.

Outdoor Room Quickly Unrolls from Carrier

Kar-Kamp Manufacturing Co., 11-680 McBean St., El Monte, California, has announced its new Kar-Kamp all-aluminum car-top carrier which holds a complete tent, sleeping bags, table, chairs, cots, stove and lantern. The actual Kar-Kamp unit is the 48x48x12 (inches) carrier and 7½x10½ (feet) tent. The tent unrolls from the carrier over an aluminum frame, using zippers to secure corners and to open doors and windows. Square room has no center tent pole, allows direct access to car interior. Unit weighs 85 pounds.

Hard Rock Shorty of Death Valley



The archeological class from one of the Los Angeles schools had come to Death Valley to spend the Easter vacation exploring the region for possible evidence of prehistoric habitation.

They had prowled through the canyons and searched the old beach lines, but without much success. One day they came to the spring in Eight Ball creek where Hard Rock Shorty and Pigsaw Bill were doing their assessment work.

"Nope! Ain't no cliff dwellings in these canyons," Shorty was telling them. "Wasn't that kinda Indians. But there wuz savages in these mountains all right."

"Pigsaw Bill found one o' the caves where they lived, all blacked up with soot, an' there wuz a lot o' them stone weapons they used fer killin' game. Way back in one corner wuz one o' them jars with a lot o' little round stones inside."

"Them's petrified reptile eggs," says Bill. "Maybe they're not as

petrified as they look. Probably tortoise eggs—jest been there so long they got hard and wrinkled that way."

"'You're crazier'n a loon,' I told Bill. 'Them's nothin' but geodes—probably with a lot o' agate inside o' 'em.'"

"Bill an' me kept on arguin' about it 'til he finally got mad an' said he'd show me."

"He had a couple o' settin' hens on some eggs out in the chicken yard an' he put them eggs under the hen. She sat on them eggs fer four weeks, an then one day she wuz out runnin' around the chicken yard a cacklin' like she wuz loco."

"Bill went in the hen house an took one look, an' then yelled to me."

"'You're wrong as usual yu ol' buzzard. Come here an' I'll prove it to yu.'"

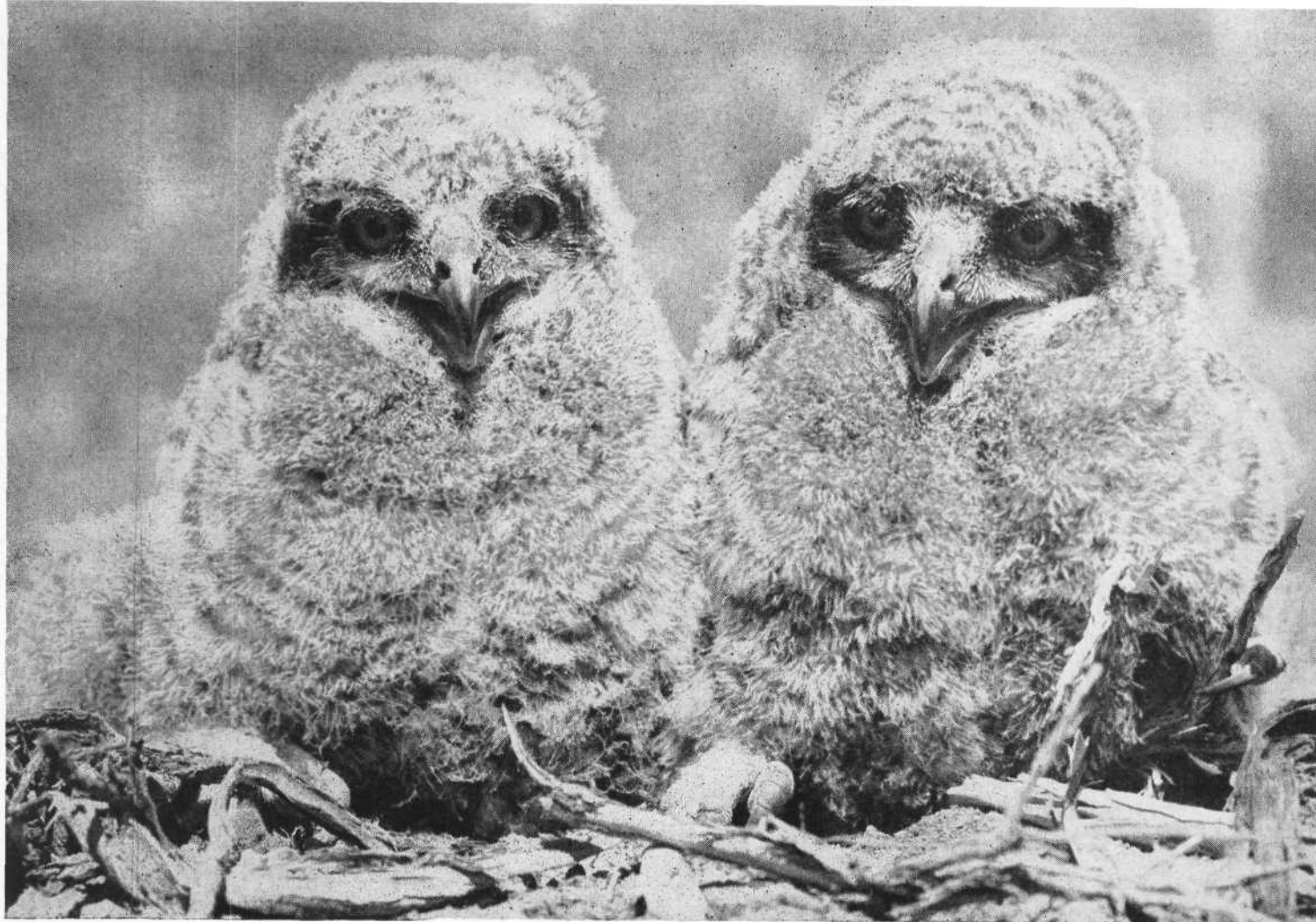
"So I went out there an' sure enough Bill wuz right. Them ol' eggs had hatched all right—two big lizards, three tortoises an' a dinosaur."

THE *Desert* MAGAZINE CLOSE-UPS

Thomas B. Lesure, author of this month's "Their Grubstake is in Copper," is not new to *Desert* readers, having had two features published in this magazine during 1954. A freelance writer, Lesure and his wife Nan spend much of their time traveling from their home in Phoenix to explore Arizona. He has sold more than 250 travel articles in the past four years and still feels he is just beginning!

Photography and woodcarving are Lesure's hobbies.

Recently, after three years on the desert, the Lesures visited their native East. Here is his description of New York: "The rush and hectic pace, the humidity and particularly a feeling of claustrophobia from the buildings and even the trees crowding in on us, after the wide spaces of the West—well, we were mighty glad to get back to Phoenix and its informality, relaxation and wide landscapes."



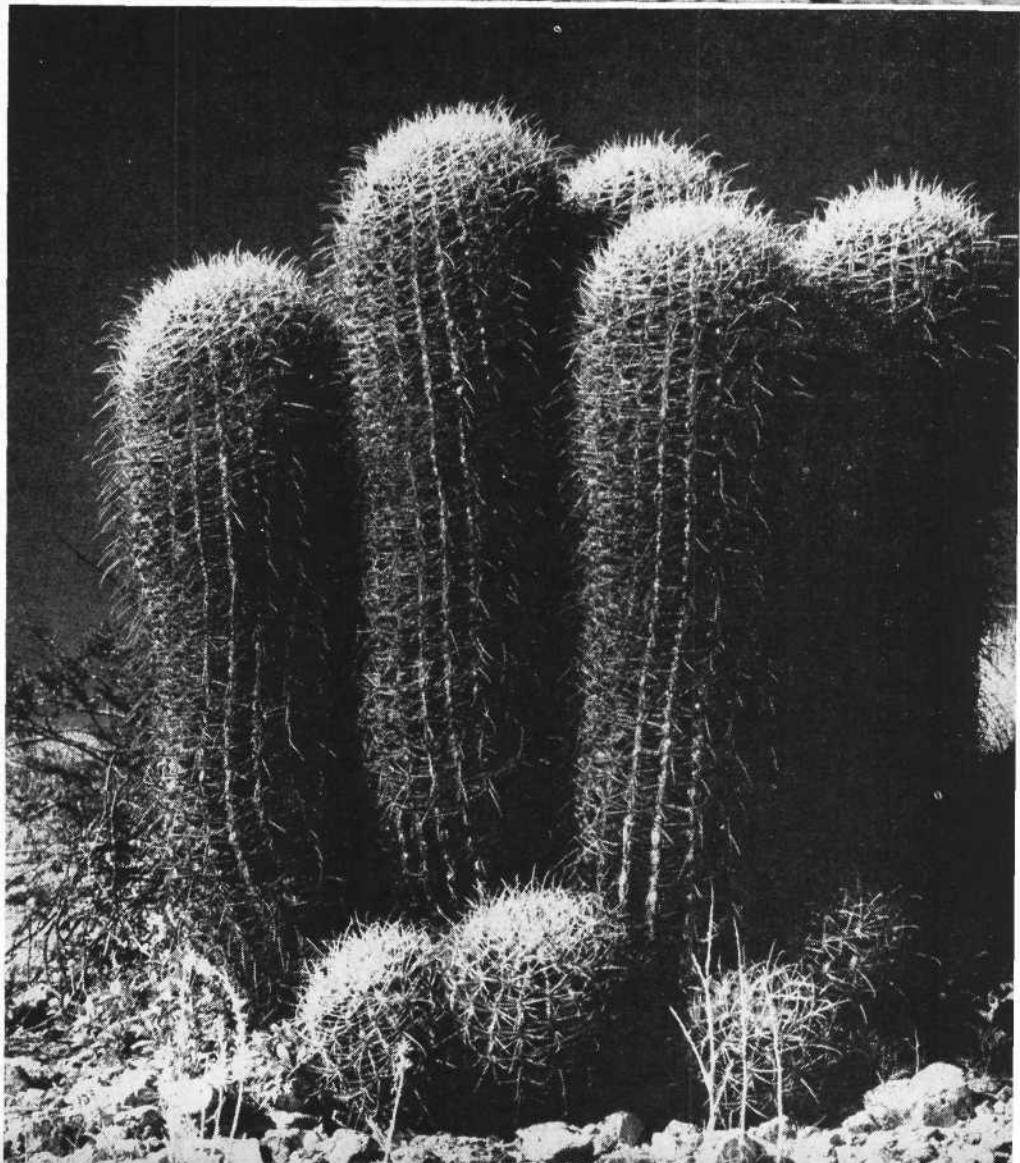
Horned Owls

Two little great horned owls posed in their nest for this picture, taken by Dick Randall, of Rock Springs, Wyoming, with a 4 x 5 Speed Graphic, Royal Pan film, 1/100 second at f. 22. Picture won first prize in April Picture-of-the-month contest.

Pictures of the Month

Barrel Cacti

This unique picture of barrel cacti in Fern Canyon, California, was taken by Nell Murbarger, of Costa Mesa, California, with an Argoflex Model E, Plus X film, red filter, 1/10 second at f. 18. Second prize photo.



My Bamboo Was the Traveling Kind . .

By RUTH REYNOLDS

"**A**ND WHAT is so rare as a day in June?" James Russell Lowell asks, and I always want to answer, "A night in June, poet! But excuse me—you lived in New England, not in the desert." Though scientists can account for the desert's seemingly phenomenal day-to-night change of temperature, what poet could find words for the magic and wonder of our summer nights?

Let the daytime sun shine with a vengeance if it must but when night falls and a breeze comes out of the west, right here is just about the best place on earth to be. Right here outdoor night life comes into its own. Young and old, children and adults, all turn out to enjoy, each in his own way, the coming of night on the desert.

Our way happened to be badminton, which led me into a rather educational gardening experience.

My husband, our two teen-age daughters and the boy next door worked with a will to rake and roll and tape off the court. While the installation of lights, with wires cabled underground to two tall poles, was a small strain on the budget, never was money for recreation more profitably spent. For with a well lighted court the game proved ideal for family fun.

In fact, only now as I think of the troubled juveniles everywhere, do I realize what a valuable asset our badminton court may have been.

I can't be too smug about it though, for it was my husband's and the children's idea. "Where else except in the desert," they said, "could you play outdoors nearly all year 'round, and at night? And what better game for a medium sized court, unpaved or unsodded?"

So we took up badminton. It was fun, and the nights, most of them, were ideal for playing it. The only exceptions were those evenings on which that very welcome breeze became strong enough to carry the feathery shuttlecock off course and spoil the game for the players.

One half the court, being between our house and another, was somewhat protected, but the other half, extending back almost to the alley, was open to the wind.

An oleander hedge around that cor-

Badminton courts are becoming increasingly popular among desert dwellers. Usually, however, the court demands a windbreak. Here is how Ruth Reynolds solved the windbreak problem in a hurry — and a few choice words from Mrs. Reynolds about why she would not try the same plan again!

ner of the lot was growing—but not fast enough and might never make a really effective windbreak.

The perfect solution to the problem, or what I thought was the perfect solution, occurred to me one day when I visited a friend who was having bamboo roots (rhizomes) dug out of her yard.

I brought them home—she was very generous with them—and planted them at three-foot intervals, about three feet beyond the oleander hedge, and a few extra ones part way along the side of the court where there were no oleanders.

Sure enough, by the next summer we had a lovely bamboo hedge. By the third summer it was high enough and thick enough to form a windbreak. The canes, with their green corn-like leaves, rose tall and straight, to about 20 feet, with no branches to overhang. No pruning was necessary and no spraying.

Everything was fine — until the fourth summer. By then the windbreak was all but chasing us off the court. My bamboo was the traveling kind,

and had traveled right through the oleanders. New shoots were coming up as far "inland" as moisture from their trench permitted.

What a problem! I shall have it with me always I fear. For I can snip the unwanted shoots off above ground and I can ask Juan to dig out some of the roots—but not too many, or I won't have a part time yard man any more. And I can read about new root-stopper devices and sigh sadly at what might have been.

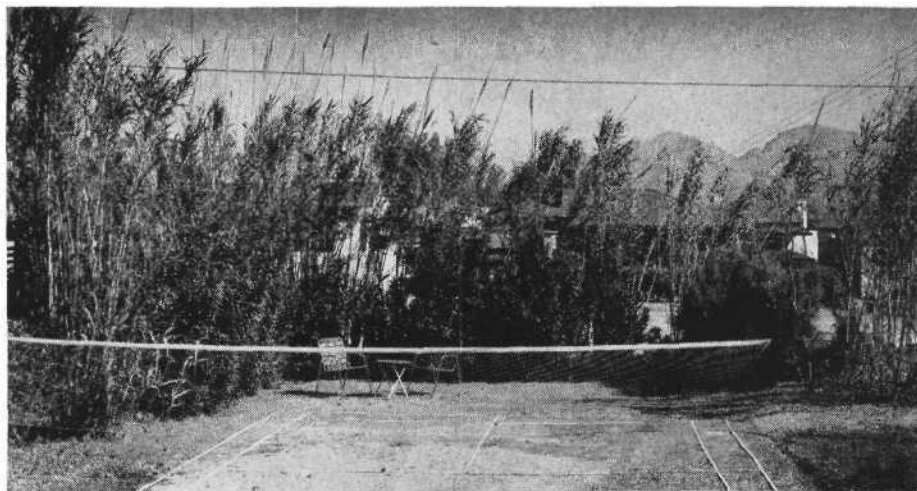
I have just read some fascinating news about a root-fence of corrugated steel, made in sections 12 inches deep and two feet long that lock together to make an underground fence of any desired length. Its purpose is to confine roots of vines and shrubs and keep them from robbing flower beds of moisture and plant food.

I can't see it stopping the roots of a tamarisk hedge or a greasewood bush but for preventing the spread of bamboo it just might work. I mean—in my case—it might have worked.

Or I might, I thought, have had a friend with a clumping, non-traveling type of bamboo. There are such types. I read about them, too — too late. There are several varieties of both clumping and running bamboos, ranging from the Giant (*Sinocalamus oldhami*) that grows to a height of 50 feet to the low (*Sasa humilis*) of three or four feet.

From ornamental potted plants to hedges, screens, windbreaks—various types have their uses. But none of these types is grown extensively in desert areas; not even where the soil

The "bamboo" that threatens to over-run the badminton court.



is fertile and the altitude lower than Tucson's 2,400 feet.

What, then, is this bamboo that is grown in the desert? That's my big discovery of 1955. It isn't bamboo at all! Dr. Charles T. Mason, of the University of Arizona's botany department, was adamant about that, despite my protests. "It is," he said, "Giant Reed (*Arundo donax*), member of the grass family, commonly but mistakenly called bamboo."

As bamboo it seems to be doing very well. I haven't seen it potted but I have, on occasion, cut a few four or five foot stalks for startling and exotic indoor greenery, a trick I learned from Patricia Benton, at whose studio-home near Scottsdale, Arizona, I was happy to find it growing. Thinned to the proper density, it softened the glare of the open desert without obscuring the view of Camelback Mountain in the distance.

When I asked Patricia why she'd chosen bamboo, she said, "For me it has Oriental associations." She spoke also of "its firm green thrusts of early spring, its lush summer growth and tawny winter spectres translated in terms of life, death and rebirth." She added, "There's the unending play of light and shadow, stilled only by the gathering dusk."

Spoken like the discerning poet she is and like a true friend to bamboo—or giant reed.

INDIAN RADIO PROGRAM POPULAR WITH NAVAJOS

GALLUP — Each afternoon hundreds of Navajo Indians enter their crude mud hogans and huddle around battery-operated radios to hear news in their native tongue from Gallup radio station KGAK.

It all started as an experiment four and a half years ago. The Navajos are known for their reluctance to adopt the white man's ways. They cling to old tribal customs, and radio listening was not one of them.

Today the Navajo program has 25 sponsors and station owner Merle Tucker recently won an Alfred I. duPont Award for his unique effort in the field of radio entertainment.

The 90-minute program is handled by owner Tucker and a Navajo interpreter, Dana Begay, who plays recorded Western music requested by listeners, gives the news translated into Navajo dialect and plays recordings of authentic Indian music. Begay says he has found that Navajos are just as interested in science and world affairs as anyone else.

KGAK also presents a program in the Zuni Indian language, conducted by a Zuni, Fred Bowannie, which consists solely of news and Zuni music. *Phoenix Gazette*

Desert Plants in the Garden . . .

Recently, *Desert Magazine* invited its readers to tell of their experience in the transplanting and propagation of native desert perennials and annuals in the home garden. Many letters have come, both from desert dwellers and from garden hobbyists on the coast. These letters are so informative we are passing them along for their interest to all the gardening fraternity.

Wildlings in the Garden . . .

Coeur d'Alene, Idaho
Desert Garden Editor:

You ask if any of the readers of this magazine have had any experience with the transplanting of desert plants. The answer is "Yes," if perhaps you refer to the arid areas (sagebrush country) of our great western states.

For some 15 years I have collected plants of native origin from all over the West. I love it. I have a garden place for each, putting them in a similar situation to their native state. A dry garden for desert-loving ones, driftwood garden for my many alpiners or woods plants and a rock garden for the low sedums or prostrate plants. Each one gets its special care.

There are some difficulties, too, and some will not thrive the first time. According to the nature of the plants, shrubby, bulb or herbaceous perennial, I try again and again. But with care it can be done. If no other way, I gather the seed, which is sure.

The native bulbs furnish a beautiful collection of different, mostly spring flowering, colors. They are, to me, the easiest of all. One must watch the depth and environment in which you get them, placing each in as near the same as possible. Allium, Brodiaea, Erythronium, Camassia, mariposa tulips and Indian hyacinths are some of them and also a long list of alpine tulips. Desert areas have many varieties.

Farther north, native anemone, lupine and iris are a good bet too, and easy to transplant. Great splashes of vivid purple *Anemone pulsatilla* in spring scatter through my garden and dainty orchid-looking iris, too, of many shades of blue.

In the dry garden beautiful silver and blue-green desert plants nestle neatly or waterfall gently over the stony earth, which is their home. Delicate clumps of *Pentachaeta*, *Eriophyllum*, some of the *Coreopsis*, the fleabanes, *Eriogonums* (butter balls) and native alyssums along with balsam root are some of them. Most of these are of the sunflower family. For taller plants to give background, desert sage and *Artemisia* are easy. Get the smaller ones to begin with. They will grow.

Another beautiful, yet easy native is the penstemon. I am always coming up with new varieties. Most any moun-

tain pass or rocky hill top here in the west has a variety or two. Every one is a thing of beauty.

A more common plant, but a bit difficult, is the Phlox family. I have successfully chosen a wide range of colors and types, but I must admit, with some it took the third try.

Most any of the desert shrubs are easy with reasonable care and selection. Some we have here in our colder areas of eastern Washington, Oregon, Idaho and Montana are very colorful and practical, too, inasmuch as they need very little care. They give a fitting look to the whole dry garden.

In the alpine gardens, one must create a woodsy look, one in which a native orchid or colony of anemone or a few runners of *pipissewa* could be. Shade and moisture must be the word for this garden.

All the arid area plants I have chosen will withstand moisture in winter if given very good drainage. A heavy loamy soil will not do. Always notice the location from which you take a plant and equal it at home. Your rewards will please you.

Wherever we go, my husband and I are rockhounds, I am looking for both new plants and rocks. You'd be surprised how well they go together. Where the agates, jaspers or crystals are loveliest so has nature built a beautiful garden. One should take time to enjoy it.

I have not tried to list all the native plants in my collection but merely used for illustration the beauty and satisfaction you could get from a hobby likewise.

BINNY BEAR

Desert Aster . . .

San Bernardino, California
Desert Garden Editor:

When visiting relatives in Lucerne Valley, California, I gathered seeds of the desert aster. I planted these seeds south of my house where they would get sunshine. Several plants came up and all bloomed. That was three years ago this spring and those asters are still growing and blooming. I cut the plants back last fall and at present they are full of buds. Several little new plants came up this season.

MRS. CLARA BYERS

Lack of Rainfall Brings Forecast of Low Run-off

Precipitation during March was again less than normal, causing estimated runoffs in watersheds of the Great Basin, Colorado Basin and Rio Grande Basin to be revised downward, according to the U.S. Weather Bureau.

Great Basin—Over the Sevier and Beaver Basins, in the Great Basin region, precipitation for the month averaged just 10 percent of normal. Outlook for these streams is now 72-82 percent of average runoff, down 10-20 percent from a month ago. The Humboldt Basin fared somewhat better with 50-60 percent of normal precipitation and near-normal over some limited areas, creating a runoff outlook substantially equal to that of last month; for the South Fork and Martin Creek near 40 percent of average flow is in prospect, while the main stream at Palisade is estimated near 20 percent of average.

In other areas of the Great Basin, the Great Salt Lake Basin remains much the same as a month ago. Showing the greatest changes are the forecasts for the Bear River (down six percent) and the Spanish Fork (down 12 percent). The combined flow for the Six Creeks near Salt Lake City is forecast at 79 percent of the 10-year average, down two percent from last month. Forecasts on individual streams range from 43 percent to 90 percent of average. For the past three months the water supply outlook for the streams of the Sierra east slope drainages—Truckee, Carson, Walker and Owens River Basins — has become progressively bleaker. Truckee, Carson and Walker Rivers are about 50-65 percent of average, down 6-15 percent from last month, while an 80 percent flow was predicted for the Owens River. The Mojave River was also down, with a current outlook for a 40-50 percent of average run-off.

Colorado Basin—Most of the Upper Colorado River Basin received precipitation amounts of less than half of the monthly normal. Over the lower valleys of the San Juan drainage precipitation for the month ranged from less than 10 percent of normal, dimming prospects for near-average run-offs. Forecasts issued this month are from 12-19 percent lower than those of a month ago, with a revised outlook as of April 1 for runoff of 67-73 percent of average for the northern tributaries and for 58 percent of average for the main stream.

The April 1 forecasts for the main stem of the Colorado River and for its tributaries in the vicinity of Granby are the same or slightly higher than those of a month ago. However, for the rest of the area forecasts are lower. The Dolores River is down 14-20 percent. The current outlook for the portion of the area above the confluence of the Colorado and Gunnison Rivers and for the Taylor River basin is for flows of 80-93 percent of the 1943-52 average. Outlook for the lower Gunnison, Uncompahgre and Dolores Rivers is less favorable with forecasts ranging from as low as 55 percent of average for the Dolores River at Gateway to 73 percent of average for the San Miguel River at Naturita. Precipitation during the season over northern Utah has been scattered, accounting for a great variance in forecasts for the Green River Basin which varies from 47 percent of average for the Straw-

berry River at Duchesne to 72 percent for the Duchesne River near Tabiona.

Over the Lower Colorado River Basin most stations have reported precipitation amounts less than 10 percent of normal. Rains equal to the best on record would not produce normal run-off for the Little Colorado River Basin, where streamflows range from 10-35 percent of average. Outlook for the entire Gila River Basin is very poor. Unless above-normal precipitation occurs over the basin during the rest of the season, prospects are that the November-June streamflows will be near the all-time low.

Rio Grande Basin—The past month has been exceptionally dry, with many stations showing none to only a trace of precipitation. Basin average was 10 percent of normal. Forecasts for the Rio Grande Basin are down 5-20 percent from those of last month. Current water supply outlook for the basin calls for flows ranging from 45-65 percent of the 10-year average for the headwaters and eastern tributaries. Pecos River Basin forecasts are also down from a month ago. November-June runoff in the range from 45-79 percent of average is in prospect for the basin.

Desert Pictures Are Valuable

The broad deserts of America offer more favorable conditions than any region on earth for the photographer, with as wide a range of subjects as the amateur or professional could request. Two essentials for good black and white outdoor pictures are sunlight and shadows—and the desert has a generous quota of both. To bring the most outstanding of these photos to its readers, Desert Magazine each month offers cash prizes in its picture-of-the-month contest. Subjects must be essentially of the desert, and of course the more unusual the subject, the better the chance for a prize.

Entries for the June contest must be sent to the Desert Magazine office, Palm Desert, California, and be postmarked not later than June 18. Winning prints will appear in the August 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 for monthly contests must be black and white, 5x7 or larger, printed 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—All 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

Here and There on the Desert...

ARIZONA

Canyon Chapel Planned . . .

GRAND CANYON—A "Shrine of the Ages Chapel" is to be built at the edge of the Grand Canyon, according to a non-sectarian group of laymen incorporated for the task. The chapel will rise at the site of the Easter Sunrise services and will incorporate such features as a sweeping view of the Canyon from the church interior, a large clergy study, wedding chapel and many of the latest and most modern church conveniences.

Hunt Apache Uranium . . .

GLOBE—Tribal leaders of the San Carlos Apache Reservation east of Globe have opened huge areas of their reservation for uranium prospecting. The western end of the reservation was divided into four tracts totaling 400,000 acres, with hunters required to submit a sealed bid for an option and one-year prospecting rights on the tracts. *Phoenix Gazette*

Fort Museum Planned . . .

CAMP VERDE — A museum to house relics of early army and pioneer days will be located in Barracks Six of old Camp Lincoln. The barracks is one of four remaining buildings at the fort, scene of many thrilling events in the heart of the Tonto, Apache, Yavapai and Mojave Indian country. *Verde Independent*

Indians May Pay Tax . . .

PHOENIX—Arizona's 90,000 Indians may be subject to the state income tax laws, Attorney General Robert Morrison believes. Although no official opinion had yet been rendered, Morrison said he was going on the premise that Indians, as citizens of the state with the right to vote, also should accept the liabilities of citizenship. Opinion was to be passed after the Indians' attorneys had reviewed his findings. *Phoenix Gazette*

Mrs. Becker Passes . . .

SPRINGVILLE — Mrs. Louisa Becker, 94, whose late husband, Gustav, was an early-day Springville merchant, passed away on April 15. Mrs. Becker came west from Milwaukee in 1883, married two years later and worked beside Mr. Becker in developing the mercantile firm which bears his name, and which is still in operation. *Phoenix Gazette*

USS Hassayampa Floated . . .

WICKENBURG — The USS Hassayampa was commissioned in Philadelphia on April 19 as the Navy's newest oiler. On the occasion, Roy Coxwell, Boss of the Roundup Club in Wickenburg, said: "We want the captain and crew of the ship to know they are inheriting not only the name of a river but a hallowed legend long synonymous with old and daring deeds . . ." He quoted the "Legend of the Hassayampa," as paraphrased by Poet Andrew Downing:

*"There's a legend centuries old
By the early Spaniards told
Of a sparkling stream that 'lies'
Under Arizona skies.*

*Hassayampa is its name
And the title to its fame
Is a wondrous quality*

*Known today from sea to sea.
Those who drink its waters bright,
Red man, white man, boor or knight,
Girls or women, boys or men,
Never tell the truth again."*

Wickenburg Sun

Scenic Lands Protected . . .

WASHINGTON, D.C.—The House Interior Committee has given approval to a bill protecting additional scenic lands in the Oak Creek-Sedona area. About 78,000 acres of land are brought under protection in the new measure, which provides that no surface rights to the area can be acquired by those filing mining claims. *Coconino Sun*

Border Patrol Headquartered . . .

YUMA — Yuma has become the headquarters for a newly-created Immigration Border Patrol sector. Created early this year, the area border patrol headquarters was established because of the special problems that exist with the Mexican wetbacks. Undisclosed increases in personnel and equipment are part of the new setup. This new sector takes in both Yuma and Mojave counties in a 40-mile-wide area extending from the sand dune area to Tortuga, California, north to the Nevada line, with patrol stations located at Wellton, Blythe and Somerton. *Yuma Sun*



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5 ACRE Coachella Valley Date Garden and Home, \$15,500. Ronald L. Johnson, Thermal, California.

MISCELLANEOUS

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.

URANIUM MAP of Southwest. Geiger counters, scintillators, snoopers, \$29.95 up. Free catalog, or better, send \$1.00 for authentic uranium map of Southwest Desert and catalog. Harry's Geiger Counters, 360 So. Hawthorne Blvd., Hawthorne, California.

AGATE MARBLES are again available. Genuine old fashioned ones. Small size \$1.00. Medium size \$1.25. Large size \$1.50. Genuine buckskin marble bag \$1.00. California residents add 3% tax. Satisfaction guaranteed. Deslie's, 282 N. Palm Canyon, Palm Springs, California.

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CALIFORNIA

Calls for Mirages . . .

BARSTOW—The Barstow Chamber of Commerce has called for information concerning the permanent mirages in its desert region. Chamber officials say many visitors inquire about the mirages and, since many of them are of a permanent nature, they would like to compile a guide to the mirages. *Barstow Printer-Review*

Eagle Drive Planned . . .

SAN FRANCISCO — America's bald eagle is in danger of becoming an extinct species, the Golden Gate Audubon Society has learned. Some estimates say there are only 1,000 pairs in existence. The Audubon Society has started a census and conservation campaign to preserve the species. *Phoenix Gazette*

Mojave Homesteading Booms . . .

BARSTOW — Homesteading for weekend retreats is rivaling real estate sales as the major land-developing factor on the desert. More than 100 applications for free land in 5-acre tracts are filed every day, according to the Federal Bureau of Land Management. But there are still about six million acres of unused federal land on the Mojave, much of which is suitable for homesteading. *Barstow Printer-Review*

County Defies Navy . . .

EL CENTRO — Imperial County Supervisors have voted to force reopening of the Niland-Blythe road, closed for five years because it runs through a Navy aerial gunnery range. Voting to reopen the route July 1, 1955, the Board said the action was taken because the Navy did not fulfill an agreement to provide an alternate route between the heavily-populated Imperial and Palo Verde valleys. *Los Angeles Times*

Pilot Knob Contract Let . . .

EL CENTRO—The largest contract in Imperial Irrigation District history, worth \$2,794,678, has been awarded the Gunther-Shirley-Lane Company, of Sherman Oaks, California, to construct intake works, a powerhouse and two substations at the Pilot Knob hydroelectric plant now under construction. The 33,000 kilowatt plant at Pilot Knob is the main feature of a \$10,000,000 power development project. *Yuma Sun*

Desert Park Sought . . .

MECCA—An all-out drive to establish the 20,000 acre Box Canyon area as a state park is under way. Riverside County, in which Box Canyon is located, hopes to raise enough money from the sale of a sheriff's substation to match \$9600 promised by California as its half of the purchase price. The state has promised to improve and maintain Box Canyon highway, build picnic facilities and roads opening up Painted Canyon and Hidden Springs. Civic groups in the area are supporting the move to turn the beautiful area into a state park. *Coachella Valley Sun*

Super Highway Proposed . . .

LANCASTER — A super highway putting Antelope Valley within minutes of Los Angeles has been proposed. The road would cut the travel distance between Los Angeles and Palmdale to 44 miles, cutting 20 miles off the present route. The proposal has been submitted to the California Highway Commission. *Lancaster Light*

NEVADA

Nevadans to Pay Sales Tax . . .

CARSON CITY—The Nevada legislature has approved the state's first sales tax, thus bringing to an end the long-standing boast in Nevada that the state levied neither a sales tax nor an income tax. Revenues from gambling are said to have made it possible for the state to operate with a minimum of taxes, until the present time. The Democratic-controlled assembly passed the two percent levy after beating down a move to substitute a state income tax. *Christian Science Monitor*

Drought Hits Nevada . . .

CARSON CITY—Drought-stricken areas of Nevada have brought emergency action in the form of federal aid and water rationing to farmers. The Department of Agriculture agreed to pay up to 50 percent of the cost of transporting hay to eligible ranchers, up to a maximum of \$10 per ton. A general western Nevada water shortage prompted irrigation districts to establish irrigation quotas of 75 percent of usual allotment.

Land Damage Rapped . . .

WASHINGTON, D.C. — Ranchers and miners are at odds in Nevada and other uranium areas of the West as members of the National Grazing Board have charged that prospectors are tearing up valuable grazing lands. Bulldozers tear out tremendous holes in long line claims, and grass will not grow in these areas for many years, the ranchers say. They suggest that core boring is the solution. *Battle Mountain Scout*

Nevada Roads Aided . . .

WASHINGTON, D. C. — A proposed highway from Denver westward through Utah as part of the national interstate highway system, now before Congress, will provide Nevada with a more direct route east and bring more travelers through that state. Senators from Colorado, Utah, Nevada and Kansas are backing the proposed route. *Humboldt Star*

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BELLFLOWER 59, CALIFORNIA

Teachers Needed . . .

PHOENIX — Teachers for Indian Service schools in Nevada, California and Arizona are being sought by the Board of U. S. Civil Service Examiners, Bureau of Indian Affairs, Phoenix area office. Positions open include those of Principal-Teacher and Secondary Teacher in the areas. Teachers selected for these posts must use teaching methods adaptable to the environment and culture of the Indians, and to become active participants in the life of the communities in which they work. Further information can be obtained at any post office. *Box Elder News*

Park Program Planned . . .

CARSON CITY — Nevada State Park Chairman Thomas W. Miller has proposed development of 40 or more locations in the state as recreational, archeological or historical sites, supporting a program to attract more tourists to Nevada. Miller also believes the present parks need better protection against vandalism. *Pioche Record*

Apache Chief Dies . . .

RUIDOSO—An 83-year-old Chiricahua Apache patriarch, Asa Daklugie, died April 7 at his home in Carizo Canyon. A hereditary chieftain, he was born at Ft. Boyd, Arizona, in 1872, the nephew of Geronimo. He was with the famous Apache on many raids and was one of his most trusted warriors. *New Mexican*

NEW MEXICO

Navajos Attend School . . .

SAN FRANCISCO — All 28,000 Navajo children of school age will have a chance to attend school by the end of 1955, according to Interior Secretary Douglas McKay. More than 8000 of 14,000 school age children who had never attended school before 1954 are now attending, he said. *Alamogordo Daily News*

Major Replaces Featherstone . . .

ALAMOGORDO—Announcement has been made by officials of White Sands National Monument of the arrival of Thomas Major from Grand Canyon to assume the duties of supervisory ranger to succeed Ranger Featherstone, who has been transferred to Platt National Park in Oklahoma. *Alamogordo Daily News*

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Form 49th State? . . .

DURANGO, Colorado — A movement to form a 49th state in the San Juan Basin of the Four Corners area (Colorado, New Mexico, Utah and Arizona) is under way, spearheaded by the Durango Herald-News. The Herald-News said the action is taken because each of the four state corners is the stepchild of its parent state. The area would be 62,500 square miles, with 75,000 persons and would form a diamond shape around the four corners. Six cities — Farmington, New Mexico, and Cortez, Durango, Mancos, Pagosa Springs and Telluride, Colorado — are seeking designation as the capital. *Phoenix Gazette*

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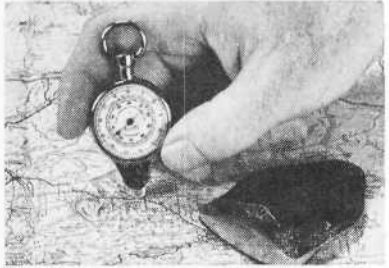
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Hicks Advertises New Mexico . . .

SANTA FE — The Ward Hicks Agency of Albuquerque was awarded the contract to handle New Mexico's national tourist advertising program. The Hicks Agency held the business from 1935 until 1951, during Joe Bursey's previous tenure as tourist director. Bursey has once again taken over the position of tourist director, after being promoted to the governor's administrative assistant in 1951 and renamed to the tourist post after Gov. John F. Simms took office this year. New Mexico's budget provides about \$190,000 for advertising. *New Mexican*

Protest Army Maneuvers . . .

ALBUQUERQUE — Stockmen of northeastern New Mexico fear the proposed 4th Army maneuvers would cause serious erosion of soil and destruction of private property in drought-stricken range lands. The New Mexico Cattle Growers Association resolved that the military should be urged to hold maneuvers on land the government already holds in south central New Mexico. *New Mexican*

New Conservation Officers . . .

SANTA FE — The New Mexico Game and Fish Department has changed the name of its game wardens to "conservation officers." Main reason for the switch was that the department wanted to get away from the law enforcement angle of the titles, an official said. *Alamogordo Daily News*

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UTAH

River Bill Passed . . .

WASHINGTON, D.C. — The U.S. Senate overwhelmingly approved (58-23) the \$1,658,460,100 Upper Colorado Storage Project on April 20, but the bill still was to face a bitter battle in the House of Representatives. Major lobbies opposing the bill are the Southern California water group and conservation bodies, opposing the Echo Park Dam in Utah and Colorado because its reservoir would flood a portion of Dinosaur National Monument. The program includes six storage dams and 33 irrigation projects in Utah, Wyoming, Colorado and New Mexico. Storage dams are Echo Park, Glen Canyon in Arizona and Utah, Flaming Gorge in Utah and Wyoming, Juniper and Curecanti in Colorado, and Navajo in New Mexico. *Salt Lake Tribune*

Fallout Figures Recorded . . .

CEDAR CITY — Residents of southern Utah were concerned with radiation fallout following the detonation of two atomic devices in Nevada for the first time in history. The atomic cloud crossed southern Utah just before noon that day, giving a top maximum reading at Beryl Junction of .84 roentgens, tapering to a low maximum reading at Caliente of .12 roentgens. This is well below the 450 roentgens which the body is estimated to be able to withstand. *Iron County Record*

Dinosaur Bones Hunted . . .

VERNAL — Dr. Theodore E. White and two assistants working at the quarry in Utah's Dinosaur National Monument are removing the overburden from a section of the hill west of the temporary quarry building in preparation for exposing additional dinosaur bones for the on-site museum. When completed, the fossil bones of three prehistoric animals—Brontosaurus, Diplodocus and Stegosaurus—will be shown in relief covering an area 200 feet long and 35 feet high. Twelve different species of dinosaur have been identified at the quarry. *Vernal Express*

Bryce-Zion Split Seen . . .

PANGUITCH — Led by the Garfield County News and Utah Senator Wallace F. Bennett, a move is under way to provide separate administrations for Bryce Canyon and Zion National Parks, now administered by a Park Superintendent with headquarters at Zion. "Bryce Canyon National Park is a uniquely beautiful area and I am anxious that it receive the emphasis which it properly deserves," said Sen. Bennett. *Garfield County News*

MINES and MINING

Silver City, Nevada . . .

A twin mining boom—uranium and tungsten—is keeping Luning and Mina quite busy these days and quicksilver possibilities have further excited the people there. Luning is in the center of the boom, with Gabbs, one of Nevada's major mining districts, to the north, Mina nine miles east and the busy Kincade District a few miles to the west. *Territorial Enterprise*

Independence, California . . .

First sale of uranium property in Inyo County, California, was reported recently when 12 claims brought \$100,000. Inyo County Recorder Richard Oyler reported nearly 200 claims filed in two days of business early in April. First property sale was about six miles southeast of Grant, 24 miles south of Lone Pine. *Inyo Independent*

Ely, Nevada . . .

Nevada's Cordero mine in northern Humboldt County accounted for more than 25 percent of the country's total 1954 mercury production of 18,500 flasks—a 29 percent national increase over 1953 and the largest since 1947, according to Nevada Senator Alan Bible. California ranked as the major producer of mercury with 60 percent of the national total. Alaska added five percent, with Arizona also reporting production for the first time since 1951. *Ely Record*

Tonopah, Nevada . . .

Recent solution of a complex metallurgical problem may pave the way for a widespread uranium development program near Tonopah, according to Turnham, MacAfee and Co. engineers. Separation of the uranium from low overall value ore was the problem and a new leaching process which recovers 65 percent is the solution. A treatment plant rated at 1000 tons per day is planned to be built in the Millers district, north of Tonopah in Esmeralda County. *Mining Record*

San Manuel, Arizona . . .

The Magma Copper Co. has acquired the 1000-home townsite of San Manuel, it was reported recently. Magma transferred 23,375 shares of stock, valued at more than \$1,650,000, to developers of the town—officials of the Del E. Webb Construction Co. of Phoenix and the Aldon Construction Co. of Bellflower, California. The new Pinal County town was developed for the San Manuel copper mines, a subsidiary of Magma. *Phoenix Gazette*

Reno, Nevada . . .

Tungsten mining in Nevada has become increasingly active as Consolidated Uranium Mines, Inc. (formerly the Uranium Mines of America, Inc.), in Lander County, has developed a large deposit of tungsten ore and a mill for processing the ore is nearing completion. Several other mining companies are developing tungsten property. *Mining Record*

Lovelock, Nevada . . .

Some very hot uranium ore within 20 miles of Lovelock has been reported. The Pershing County area, from which the report comes, has been described as having a greater variety of minerals than any other area of the size in the world. *Battle Mountain Scout*

Washington, D. C. . . .

Seven to 10 year advance market for uranium miners and producers has been advocated by Dr. Jesse Johnson of the Atomic Energy Commission in order to justify expenditures of private capital for prospecting and exploration. Today there are more than 4000 miners on 800 mines—mostly in the Colorado Plateau—contrasted to 50 miners in 15 mines in 1948. He said domestic production alone could support the domestic consumption for the next 40 years, if all continues at the present rate. *Pioche Record*

Tombstone, Arizona . . .

The Tombstone area is to be the operating site for a brand new manganese mine, the newly-formed Moza Mining and Development Company announced. Mining operations were to begin as soon after April 15 as possible, depending upon delivery of equipment. Operators of the new mine believe the area, once rich in silver, to be just as rich in manganese. *San Pedro Valley News*

San Francisco, California . . .

The United States has millions of tons of uranium in its vast far-flung ore deposits, but much of it will be hard to get, Jesse C. Johnson, director of the AEC Division of Raw Materials has stated. Cost of uranium now is probably about \$12 per pound, making it profitable to operate deposits where ore assays from .1 to .05, he said. That plenty of uranium exists was shown by the fact that the AEC approved power reactor construction both in this country and abroad. *Salt Lake Tribune*

San Francisco, California . . .

A reprint of the guide to mining laws of California for use by prospectors and miners has been issued by the State Division of Mines. The pamphlet, entitled "Legal Guide for California Prospectors and Miners," deals with the manner of locating and holding mineral claims, mineral patterns, State and Federal lands, water rights and other points. The booklet, which sells for 25 cents plus three cents tax, is available at Division of Mines offices, Ferry Building, San Francisco. *Mining Record*

Cutter, Arizona . . .

Completion of the AEC's uranium ore-buying station at Cutter, eight miles east of Globe, was expected late in May. In mid-April one large crusher had arrived at Cutter and plans were in operation to erect structures to house the crusher, scales and sampling equipment. The completed plant was to be turned over to the American Smelting and Refining Company for operation. *Palo Verde Valley Times*

Raton, New Mexico . . .

In one of the largest single business transactions in this section of the state in many years, Kaiser Steel Corporation of Oakland, California, has obtained an option to buy 202,000 acres of land in fee simple and about 326,000 acres in coal rights from the St. Louis, Rocky Mountain and Pacific Coal Company. Kaiser must exercise the option to purchase by August 1. Plans for the area and amount of the purchase were not disclosed. *New Mexican*

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AMATEUR GEMCUTTER

By LELANDE QUICK, Editor of the Lapidary Journal

This is the story of a project; one of the most interesting, unique and beautiful gem projects ever put together cooperatively by a hobby group.

The California Federation of Mineralogical Societies is holding its 16th annual convention and show this year in the Civic Auditorium at San Francisco on July 8-9-10. The host society will be the San Francisco Gem and Mineral Society and the show is being termed an "international" exposition because exhibits will come from several foreign countries. In the years to come we predict that many foreign rockhound clubs will send exhibits to our leading gem and mineral shows for they are being organized all over the world and the hobby is becoming an international one. For instance new clubs have been formed this year in Greenland and South Africa and that takes in a territory reaching practically from pole to pole.

But what we like about the San Francisco effort is that while they are going to have some top-notch exhibits of commercial gems and museum objects they are stressing the work of the amateur lapidary and jewelry craftsman and the highlight of the show will be the combined exhibit of many of the members in a diorama called *Davy Jones' Locker*.

In the Society's exhibits the last two years at Scottish Rite Hall it has featured an aquarium filled with fish cut from gem

materials by the members. The new exhibit is an enlargement of this idea. One of the lapidary lessons in the course given at Galileo Adult School in San Francisco under the direction of William Meader is the carving of a fish. If a student cannot successfully do the simple carving required in producing a fish he is not regarded as having completed a comprehensive course in lapidary art. Meader did not want to turn out just a bunch of cabochon artists and his students learn every phase of gem cutting. Consequently many gem fish have been turned off the machines in San Francisco, and, as many of the students later became members of the local club, there is no lack of stone fish.

The Society held a meeting to decide on a plan for a super-exhibit. The result was the adoption of a scheme by Afton Lewis to make *Davy Jones' Locker*. The appropriateness of the name is difficult to trace but Davy Jones appears to be the spirit of the sea and that is what the members wished to capture.

In the Locker there will be a school of smoky quartz minnows (18) suspended on practically invisible wires to present a moving mass of fish. Interference with the school of fish will be achieved with carnelian agate angel fish, Brazilian banded agate striped bass and other fish of obsidian, Montana agate and jade. There is even a slippery eel. On the rocks and floor of the ocean will be Petoskey stone turtles, about which we wrote a few months ago. Star fish will be made of petrified dinosaur bone and creamy yellow jasper and there will be odd looking sea denizens with streamers of wire. Close to a treasure chest, resting on the ocean bottom of crushed marble, will be a realistic jade anchor and ore to give realism to the scene. A delicate oyster shell of jade will house a pearl made of pale green chrysoprase. Cunning pot-bellied sea horses made of the mottled green and white Covelo jade and soft brownish jasper

will float lazily through the scene. The half buried treasure chest will pour forth cut gems of many varieties. The impact of all this beauty will be one of the most valuable "take home" memories that the visiting hobbyist has ever seen at any show.

The problems of this project were numerous. A case had to be secured that had the right dimensions and one that could be used with a special lighting system to enhance the underseas picture and yet blot out the *modus operandi*. There had to be an arrangement to give motion to the figures to keep the scene from being static, for after all this was to be a waterless sea scene. Experiments were made with various paints on the flat inside of the case and a paint was found that crystallized in a bluish-green sparkle which gave a startling effect of water. Currents of air blown through the top of the case made a mobile exhibit of the fish that was highly realistic. Coral and seaweeds at the ocean bottom were made of sea green spears and thin slices of actinolite.

When the whole thing was assembled pictures were taken in color and when we saw the result we immediately suggested a scheme to the society. To print the scene in all its colors would require an investment in engravings that would be prohibitive to a publisher desiring to give the exhibit some publicity. All clubs giving shows usually have the members send out postal invitations to their friends inviting them to the exhibit. "Why not have these plates made post card size" we advised them "and print the scene on postals as invitations to the show and sell the cards to the members for enough to off-set the cost?" This was done and now the Society has come up with a beautiful post card as a souvenir of the show and every one who collects cards should have one of these in the collection. We believe that if you will send a dime to Alden Clark, 298 Boden St., San Francisco, that he will be glad to address one of the cards to you.

Because this profitable idea came from us the Society has kindly loaned us the color plates and the *Davy Jones Locker* scene will be produced in full color on the cover of the June issue of the *Lapidary Journal*. In any event plan to attend this fine show on July 8, 9 and 10 and see the unique exhibit for yourself.

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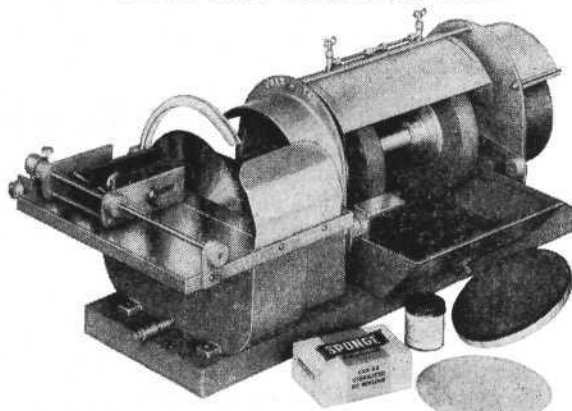
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GEMS and MINERALS

New features of the Wichita Gem and Mineral Society show, held April 23 and 24 at St. Anthony's Recreation Center in Wichita, Kansas, included a display of radioactive minerals and lapidary equipment in operation. Outstanding outside exhibits came from Fort Hays State College, Kansas State Geological Survey and the University of Wichita geology department.

First rock show of the Tucson, Arizona, Gem and Mineral Society was such a success that the club hopes to make it an annual event. More than 1300 persons attended the show, held March 19 and 20 in the auditorium of the Helen Keeling School. First, second and third place ribbons were given for collections entered. Eleven dealers participated in the show.

Mary Frances Berkholz, field trip chairman of the California Federation of Mineralogical Societies, has issued the first two of a series of three bulletins to aid field trip chairmen of the various gem and mineral clubs of the Federation. The first bulletins include news notes on collecting areas, a good article on field trip preparations, and a safety feature. Bulletin is available from Mary Frances at Cal-Rock Ranch, Rt. 1, Box 49, Littlerock, California.

A rockhound was busily engaged with a hand shovel in the sand beside his pickup when another rockhound hailed him.

"Stuck in the sand?"

"Oh, no!" exclaimed the first rockhound cheerily. "My motor just died and I'm digging a grave for it!"

(From the Dona Ana County, New Mexico, Rockhound Bulletin.)

Dates for the Arkansas Mineralogical Society gem and mineral show have been set for October 7-9. The show will be held in the National Guard Armory at Hot Springs, Arkansas.

Good specimens of vanadinite, wulfenite and galena were collected by the Mineralogical Society of Arizona on a recent field trip. The group reported the road to the collecting area, the Esperanza Mine east of Kelvin, Arizona, was very rough but passable.

One of California's newest rockhound clubs is the Riverside Gem and Mineral Society. Since the aim of the society is to promote close friendships among members, all meetings are held in members' homes, with membership size limited to conform with this policy.

Three months trip through Baja California in a Model A Ford was the experience of Ted Wilcox, of the San Jacinto-Hemet, California, Rockhounds. Wilcox told his club that he collected 1200 pounds of minerals and shells on the trip.

Officers of the Whittier, California, Gem and Mineral Society for 1955 were elected at a recent meeting. They are: William Burns, President; Eddie Cameron, First Vice-president; Pat Worthington, Second Vice-president; Mrs. Stone, Secretary; and Directors Pernell Barnett, Henry Gremli and Sol Stern.

Seven interesting minerals were to be collected on the April field trip of the Compton, California, Gem and Mineral Club to Mesa Grande, California. Among these minerals were tourmaline, columbite, stibio-tantalite, morganite beryl, pink apatite, mica, quartz and feldspar.

A new society has been organized in San Diego, California—the San Diego Gemological Society. First meeting of the group was held April 6. Its purpose will be to promote gemology, to establish a speakers bureau on this subject and to study gemology and keep up on the latest methods of identification.

What is perhaps the largest membership of any rock and gem club in California is claimed by the East Bay Mineral Society, of Oakland, California. They completed their fiscal year in May with 356 active members, not including honorary and courtesy members.

The annual Compton, California, Gem and Mineral Club show will be held June 4 and 5 at the VFW Hall in Compton. Theme of the 1955 show is "Holiday in Gems." The group has also bid to sponsor the 1957 California Federation Convention in Compton.

Coachella Valley, California, Mineral Society members were treated to a curiosity meeting in February. Their monthly bulletin reports: "Clifton had a doughnut-shaped chalcedony rose through which a plant grew. The skeleton was still there. Leah Hambly filled a case at the convention with her curiously-formed rocks and combinations of mineral formations. Others have found crucibles, spikes, prospectors' early day tools and equipment, horse shoes and relics of military maneuvers."

Onyx and cinnabar were collected by the Gem and Mineral Society of San Mateo County, California, on its April field trip to Manhattan Mine, near Monticello, California.

Members of the Hollywood Lapidary and Mineral Society are required to make an exhibit of at least five pieces of lapidary work or ten mineral specimens every year. Displays are presented at each monthly meeting.

Second annual gem and mineral show of the Humboldt Gem and Mineral Society will be held October 1 and 2 at Eureka, California. Committees have been named and are starting their show activities.

New officers of the Dona Ana County, New Mexico, Rockhounds are President Vearl Hooper, Vice-president Lucy Derham, Treasurer Ralph Cruzan, Recording Secretary A. G. Bardwell and Corresponding Secretary Mary Malar.

RESOLUTION

By DOROTHA FOX

That I shall see Thy handiwork in
in every blade of grass,
In every stone beneath my feet along
the mountain pass,
In every tiny creature as it scurries
on its way,
In night's breath-taking beauty, in the
brilliant dawn of day;
To listen to Thy "still, small voice" in
every gentle breeze,
To feel Thine awesome presence in
the majesty of trees,
To recognize Thy Spirit in the heart
of every man,
To realize that by Thy Word the uni-
verse began—
This I resolve.
(From the Dona Ana County, New
Mexico, Rockhound Bulletin.)

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ATTENTION ROCK COLLECTORS. It will pay you to visit the Ken-Dor Rock Roost. We buy, sell, or exchange mineral specimens. Visitors are always welcome. Ken-Dor Rock Roost, 419 Sutter, Modesto, California.

OPALS AND SAPPHIRES rough, direct from Australia. Cutting opal, 1 ounce \$5, \$10, \$20, \$30 and \$60. Blue sapphires, 1 ounce \$10, \$30 and \$60. Star sapphires 12 stones \$10, \$20, and \$30, etc. Post free and insured. Send international money order, bank draft. Australian Gem Trading Co., 49 Elizabeth St., Melbourne, Australia. Free list of all Australian stones rough and cut, 16 pp.

TWENTY-FOUR IDENTIFIED gem stones and specimens in display box. \$2.00 prepaid. JH Desert Jewelry, Rt. 4, Box 403, Yucaipa, California.

FIRE AGATES—preformed to show the fire, \$2.00, \$3.00 and \$5.00 each. You finish em. B. & H. Rock Shop, 2005 N. Big Spring St., Midland, Texas.

GENUINE TURQUOISE: Natural color, blue and bluish green, cut and polished cabochons — 25 carats (5 to 10 stones according to size) 3.00 including tax, postpaid in U.S.A. Package 50 carats (10 to 20 cabochons) \$6.15 including tax, postpaid in U.S.A. Elliott Gem & Mineral Shop, 235 E. Seaside Blvd., Long Beach 2, California.

GEMS A-PLenty: Beautiful baroque gems, large variety, tumble polished all over, \$10.00 for one pound (about 100 stones). 10 lbs. of top grade gemstone prepaid for \$7.00. Wholesale price to dealers on baroque gems and gemstone in the rough. Satisfaction guaranteed on every sale. San Fernando Valley Gem Co., 5905 Kester Ave., Van Nuys, Calif.

FOR SALE: Beautiful purple petrified wood with uranium, pyrolusite, manganese. Nice sample \$1.00. Postage. Maggie Baker, Kingman, Arizona.

BEAUTIFUL FREE GOLD — Specimens \$1.00 each. Return if not satisfied. Prices to dealers. J. N. Reed, Box 102, Cabazon, California.

QUARTZ CRYSTAL GEODES (Kentucky Diamonds). These geodes range from 2" to 8" diameter. Showy xls. Masses clear to white, some phantoms. Selected specimens from broken geodes \$2.50 lb. Unopened geodes \$1.50 lb. Dealers write for wholesale rates. Midwest Mineral Mart, R. B. Boies, P. O. Box 391, Hamilton, Ohio. We trade for Western minerals.

SPECIAL TUMBLED GEMS—3 oz. \$1.25, excellent quality, postpaid. Dixie Rock Shop, 3245 Prospect Ave., So. San Gabriel, California.

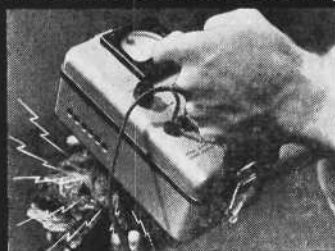
COLORADO MINERAL specimens, cutting and tumbling materials. Send 2 cent stamp for list and terms. Dealers please write for wholesale list. John Patrick, Idaho Springs, Colorado.

STOP at the new Ironwood Rock Shop. 7 miles West of Blythe, California, Highway 60-70. Many new rocks and minerals.

ONYX BLANKS, unpolished, black 25c each, red, green, blue 35c each. Perfect cut titanium. Fine cutting and polishing at reasonable prices. Prompt attention to mail orders. Juchem Bros., 315 West 5th St., Los Angeles 13, California.

REWARD \$35,000

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"20th century prospectors"—hunters, fishermen, everywhere—are piling up millions of dollars in cash bonuses for uranium discovery. Prospecting is easy with Goldak's bantamweight U-238C geiger counter—superlative, triple-action detector. "Zero-in" with multi-range meter, loud clear audio signal and special neon flasher. More sensitive scintillation counters available for field and airborne use. Also—famous line of Goldak metal detectors, priced from \$49.50.

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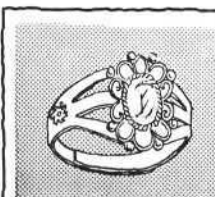
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HOW TO FIND URANIUM

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- From the Air
- From Coast to Coast
- Close to Home
- In Your Spare Time
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You get these three finely-made, Indian Design Sterling Silver parts—cup, decoration and shank—which will make up to size 10 ring. Other Sterling Silver parts available for rings, bracelets, brooches, etc. Write for list.

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STRIKE IT RICH with the new MODEL 111B DELUXE SCINTILLATOR

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"PERCENT METER"
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LARGE 1 1/2"
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200 TIMES AS
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New ultra-efficient,
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Would you hitch a diesel
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A large crystal is of no value
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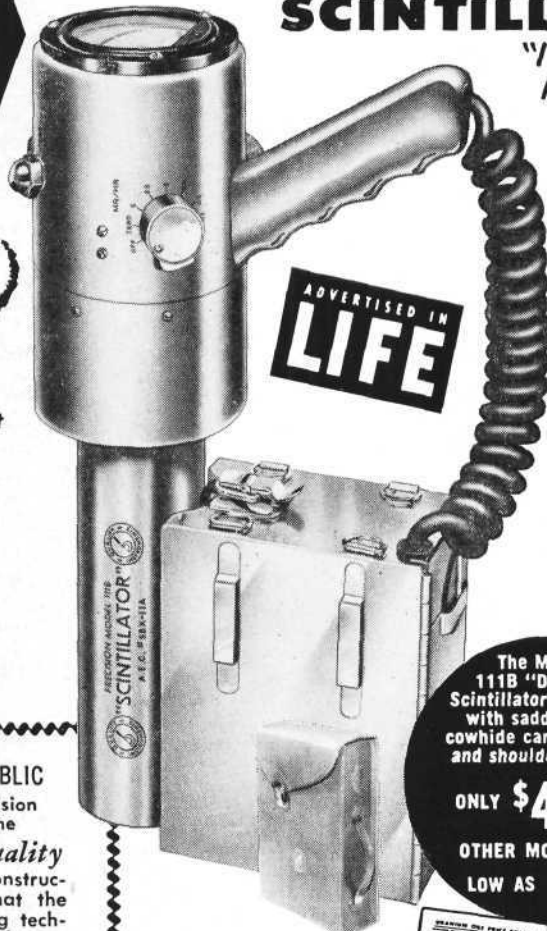
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Scintillator complete
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chart showing
the value of
Uranium Ore.



...Says Blanton Burford, amateur prospector who first detected Uranium with a Precision Radiation "Scintillator" on the fabulous Rattlesnake No. 9 claim. Mr. Burford recently sold about 8% of this claim for \$4,000,000. Many others have become Uranium millionaires using Precision instruments. In the past two years over \$3,750,000 in Government bonuses has been paid for Uranium discoveries. Over \$175,000 in bonuses is being paid each month to people just like you. This is in addition to the price paid for the ore.

You too can be a Uranium millionaire! ... and of course you will want to use the new Model 111B "DeLuxe" Scintillator — the first and only instrument that reads in percentage of Uranium. With the "percent meter" you know right in the field how valuable your ore is. And that's not all! Only the 111B has a large 1 1/2" diameter crystal and the ultra-sensitive "Multi-Mu" eight tube circuit making it 200 times as sensitive as the best geiger counter.

IT'S EASY TO USE —

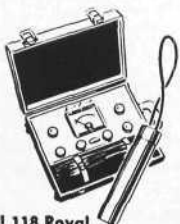
Burford says "I knew nothing about instruments or prospecting. It was easy. All I did was to follow the instructions that came with my Precision Scintillator!"

Don't delay. Cash in on this once in a lifetime opportunity. See your local dealer today for an actual demonstration of Precision quality instruments or write to the factory for your free copy of the new book "64 Questions and Answers on Geiger Counters and Scintillators," and a complete catalog on Geiger Counters, Scintillators, Metal Locators and Mineralights.

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Basic Camping Needs Cited in List for Novice Rockhounds

In any rapidly-growing hobby—like rockhounding—the old-timers are prone to take advantage of the newcomers, teasing, playing tricks and doing all but giving accurate information.

Of course, it's all in good fun, but the hapless newcomer could be saved from numerous pitfalls with a bit of advance information. That is what Mary Frances Berkholz, field trip chairman of the California Federation of Mineralogical Societies, has endeavored to give in the Federation's first Field Trip Bulletin. We quote:

"Before one can embark on a trip to collect rocks there is the all important packing up to do. For the rock collector who has been at it for some time this does not pose a problem. He has his own routine developed through experience. In every club, however, there is the new collector who is not exactly sure what he will need for comfortable camping and successful collecting . . .

"Listed below . . . are only basic needs

and you can change them to suit your locality. Make your list brief, but complete.

"FIELD TRIP EQUIPMENT"—One grand thing about our great hobby of rock collecting, is the fact that elaborate equipment isn't necessary. You can spend a weekend in the field with a minimum of camping equipment. Each individual will require different equipment and as trips are made you will learn what to add and what to leave home.

"If you are new at rock collecting and haven't ventured far afield, here are some basic needs for an overnight trip.

"Sleeping. If there are just two in your family you can use your car seats for a bed. Take plenty of blankets and extra pillows and you'll be surprised how well you will rest. Car seats make fine beds for youngsters, too.

"Good sleeping bags, with or without air mattresses, are the most comfortable sleeping measures. For desert country place your sleeping bags on cots. Sleeping bags are a good investment, being warm and comfort-

able. They also eliminate the carrying of a lot of extra bedding and are easily packed in small compact rolls.

"If you have a station wagon you can remove the rear seats and make a bed on the floor. The bed of a pickup truck can also be used.

"Tents. Tents are not a necessity by any means. They do give privacy and protect you from the elements while sleeping. A tarp on the side of the car will also do this. A tent, to have or not, must be the choice of the individual.

"For Eating. Nothing takes the place of a good, two-burner camp stove. The old campfire, for cooking, is on the way out. Smaller stoves are available, but are not generally satisfying for regular use.

"For a table you can use a folding card table as a temporary measure and perhaps you will want to continue with it. One of the best tables you can get opens up to five feet in length. It folds to three inches wide and is carried like a suitcase. This table is large enough to place your stove on, use for eating, washing and storing your food supply. Thus one table serves several purposes, yet packs conveniently.

"Food is a matter of personal preference. Make your meals as simple as possible to prepare since you want to spend most of your time collecting.

"Water. It is necessary to bring water on most trips. Five gallons will see two people through a weekend, providing they use it with care. We advise always carrying water on any field trip and thus be on the safe side.

"Light. A Coleman lantern can't be beat for good light. A lantern isn't necessary to have right away. After a full day of collecting in the fresh air you will find most rockhounds hit the bedroll early.

"For Collecting. The beginner needs only a good geology pick (called rock hammer by collectors) and a small magnifying glass. A sturdy sack to carry his specimens in will complete his equipment. A small canteen should also be carried since you will wander far away from the car or camp.

"After you have been collecting a while you will probably add a crow bar, heavy sledge hammer, chisels, etc.

"In Your Car. A shovel and ax should be carried on trips. For desert areas two strips of canvas or burlap bags should be carried for use should you get stuck in the sand. A rope or chain is also a good idea to have."

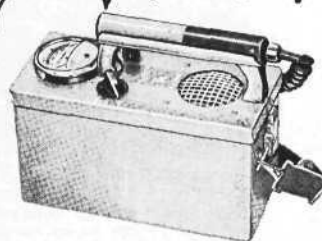
ARIZONA SILVER YIELD HEALTHY FOR MINES

Only rarely do we find native silver or any of the important silver minerals in Arizona. In earlier days good specimens of native silver came from a number of the older mines. The silver chloride, cerargyrite or horn silver was not too rare, and the colorful ruby varieties could be found.

Almost all Arizona ores carry some silver in amounts that vary from almost a trace to several hundred ounces. The greater part of the silver produced in the state is strictly by-product from the large, low-grade mines. In 1935 Arizona produced a total of 4,357,429 ounces of fine silver. Though Arizona is substantially a copper mining state, the total by-product gold and silver each year amounts to around four million dollars for each metal.

(Condensed from the *Rockhound Record* of the Mineralogical Society of Arizona.)

The San Fernando Valley, California, Mineral and Gem Society was scheduled for two field trips during April, the first to Crystal Hill, Arizona, and the second to Tick Canyon, California.



**NEW
F-6
GEIGER
COUNTER
\$159.50**

Designed and engineered especially for Prospectors. Here is a rugged, compact, battery-operated, portable uranium prospecting instrument. Hand carry or sling from shoulder on strap. Has highest sensitivity practical for use in the field. Check its advanced design features at right.



1. BUILT-IN LOUDSPEAKER—Eliminates headphones.
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**DS-234
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Gun type. Ultra hi-sensitivity for aerial or mobile search. 6 operating ranges—25, 5, 1, .25, .05 and .025 MR/HR. Will operate in temperatures from 35°F to 110°. 3 controls—zero set, range and time constant. Tropicalized, waterproofed and shock-proofed.

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Detatron Super-Sensitive Radiation Detector. Ideal for detecting deep uranium deposits by grid-map survey. 3 ranges 0-25, 0-250, and 0-2500 counts per sec. Excellent for airborne use. Meter calibrated in counts-per-sec.



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Most Sensitive**

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V-43 MINERALIGHT—Ideal for field use in Uranium Prospecting, Mining, Ore Sorting, etc. Has a 6 bar quartz tube. Thumb-tip switch. Built-in flashlight for white or ultraviolet light. Reflector, tube and filter protected by metal guard. With carrying case and straps. Wt. 6¼ lbs.

V-43 BATTERIES—6 V. Hot Shot **\$3.75**

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M12 MINERALIGHT—Lightest, most compact field unit available. Built-in flashlight with 2-way switch for white or ultraviolet. Pure fused quartz tube. Weighs only 3¼ lbs. **\$39.75**

M12 BATTERIES for above, 6V, lantern type **90c**

MOD. 27 De Luxe METAL DETECTOR—With meter. Depth range 7 ft. **\$110.00**

MOD. 711 METAL DETECTOR—Will detect all metallic minerals incl. gold & silver. Light weight. Depth range 21 ft. **\$138.50**

ALSO AVAILABLE—Many other models Geiger Counters from \$55.50, Scintillation Counters, "Lakewood" Chemical Test Kits, Gold Pans, Books for prospectors, etc.

NOTE: Order from this ad. 50% Deposit with C.O.D.'s. All prices F.O.B. Compton, Calif.

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Compton, Calif. Phone NEwmark 2-9096

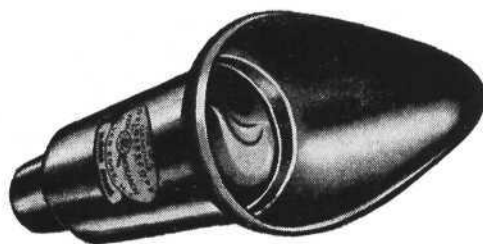
KEN KITS for everyone interested in Uranium and Atomic Energy

EACH KIT IS UNCONDITIONALLY GUARANTEED OR MONEY PROMPTLY REFUNDED

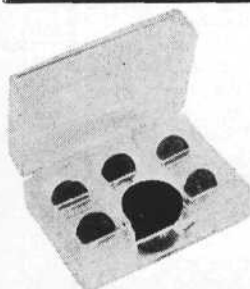
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Optical uranium and radio-activity detector. Now in use in hundreds of laboratories, in industry, atomic energy plants and major universities. More sensitive for use on radioactive samples or mineral specimens than any portable electronic instrument, regardless of price. Sturdy, durable, portable as a pocket watch. Requires no power source because it converts the energy of alpha rays directly into visible signals; no background count. Detect and measure any alpha-active isotope down to the range of a millionth of a microcurie. Detects contamination of air, surfaces, hands, apparatus, not revealed by conventional instruments. Measures radioactive fallout from distant nuclear explosions. Invaluable for any one interested in radioactivity. Supplied complete with calibrated radium standard, uranium ore sample, direction sheet and air-tight holster.

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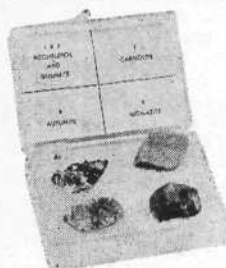
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Ken Calibrated Radium Standard Kit:

This kit contains five permanent standards for the testing and calibration of any counter, scintillator, ionization chamber, Geigerscope or any other radioactivity detector. They cover the range from 100 to 1,000,000 disintegrations per minute. Complete with accessories and data sheet giving the certified alpha, beta and gamma activities of each of the five standards.

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Ken Radioactive Ore Specimen Kit:

For comparison or display purposes. Four rich mine samples from different parts of the country are attractively packed in a pocket size clear plastic box. They contain all five of the commercially important radioactive ores. Complete with data sheet giving the identifying characteristics and mineralogical properties.

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KEN BEAD TEST KIT:

The sodium fluoride bead test is one of the most sensitive for detecting and confirming uranium minerals. It enables you to distinguish between uranium and thorium. The vial of pure sodium fluoride meets ACS specifications, enough for hundreds of tests. The bead holder is of platinum wire, permanently sealed into a heat-insulating handle; forceps are provided. All attractively packed in a convenient case that you can slip into your pocket. Complete with direction sheet.

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LONG WAVE ULTRA VIOLET BULB:

Screw this bulb into any ordinary 110 volt socket and you have a powerful 250 watt source of long wave ultra violet. Produces brilliant fluorescence in many uranium minerals as well as hundreds of other minerals, chemicals, oils, plastics, fabrics, etc. Perfect for the fluoride bead test. Shipped complete with data sheet on fluorescent uranium minerals and other materials.

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SHORT WAVE ULTRA VIOLET BULB:

An inexpensive source of short wave ultra violet radiation. Excites fluorescence in tungsten ores, carbonates and other minerals which do not react to long wave UV. Complete with special socket, simple wiring diagram anyone can follow, direction and data sheet.

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KEN ULTRA VIOLET FLASHLIGHT:

Our research staff has now developed a completely portable ultra violet light for the use of the uranium prospector. Compact, sturdy and rugged and operates on ordinary flashlight batteries. The powerful beam will cause fluorescent uranium minerals to glow at a distance of ten feet. Complete except for batteries so you can use fresh ones from your local store. Data sheet lists fluorescent minerals. JUST THE THING FOR THAT NEXT FIELD TRIP.

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Valuable data on radioactive ores, field, lab and mill methods, and map. Everything you need know about this vital new field! Send for Handbook today!

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The North Lincoln Agate Society (Ocean Lake, Oregon) will hold its 13th Annual Agate Show in the Delake Grade School on Highway 101 on July 30 and 31, according to Hazel Lacey, Society Secretary. It is reported there will be plenty of free parking.

THE PROSPECTOR'S CATALOG

We are pleased to announce the advent of a new Minerals Unlimited Catalog, specifically designed for the amateur or professional prospector. If you are interested in Geiger Counters, Mineralights, Blowpipe Sets, Gold Pan or any of the other equipment necessary to a field or prospecting trip, send 5c in stamps or coin for your copy.

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COMPARE!

Put the Hillquist Gemmaster beside any lapidary machine—cheaper, flimsy "gadgets" or units that sell at twice the price. Compare construction! Compare ease of operation! Compare how much you get for your money and you'll say, "I'll take the Gemmaster!"

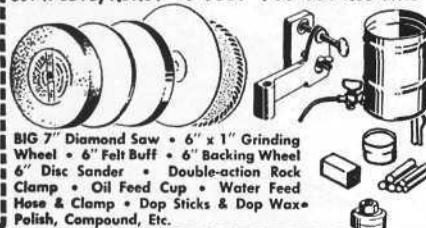
Here is a worthy companion for our larger and more expensive Hillquist Compact Lapidary Unit. The smaller in size, the Hillquist Gemmaster has many of the same features. It's all-metal with spun aluminum tub. You get a rugged, double-action rock clamp, not a puny little pebble pincher. You get a full 3" babbitt sleeve bearing and ball thrust bearing. You get a big 7" Super Speed diamond saw and all the equipment you need to go right to work.

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You can use all the regular Hillquist accessories with the Gemmaster: The Hillquist Facetor, Sphere Cutters, Laps, Drum and Disc Sanders, etc.

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BUILT FOR LONG SERVICE!
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1545 WEST 49TH ST., SEATTLE 7, WASHINGTON

ROCKY MOUNTAIN SHOW SET FOR JUNE 16-19

The annual show of the Rocky Mountain Federation of Mineralogical Societies will be held in conjunction with the Wyoming State Mineral and Gem Show June 16-19 in the Mountain View School, Rawlins, Wyoming.

Dealer space has been made available at a rate of \$1.50 per lineal foot, with a mini-

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mum of \$7.50, while non-commercial exhibits will be free and on a non-competitive basis. Camping privileges are also available.

Convention chairman is Mrs. T. M. Wood, of Rawlins, Wyoming. Other show officials are: general manager, Ralph E. Platt, Saratoga, Wyoming; commercial exhibits, Mrs. Betty Fellows, Rawlins; housing committee, J. Y. Thompson, Rawlins; field trips, G. A. Willis, Rawlins; program committee, Mrs. Leslie Bowser, Bairoil, Wyoming.

One of the interesting areas which may be included in the field trips is that of the "Diamond Hoax." An old book describes this incident: two old prospectors salted a mesa in the "Rawlins Springs" area with precious stones purchased in England. They duped many persons out of thousands of dollars before the fraud was discovered when a cook for a geological survey accidentally kicked from an ant hill a diamond that showed evidence of lapidary work. Diamonds, rubies, garnets, emeralds, amethysts and sapphires were found in the same area, an association impossible in nature.

(From the Dona Ana County, New Mexico, Rockhound Bulletin.)

The Ninth Annual Gem and Mineral Show of the Orange Belt Mineralogical Society (San Bernardino, California) will be held at the Orange Show Grounds, San Bernardino, on October 22 and 23, according to Ora Slankard, Corresponding Secretary.

Prospector's Headquarters

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| The "Snooper" Geiger Counter—Model 108 | \$ 29.95 |
| The "Lucky Strike" Geiger Counter—Model 106 | 99.50 |
| The "Professional" Geiger Counter—Model 107 | 139.50 |
| The "Special" Scintillator—Model 117 | 299.50 |
| The "Deluxe" Scintillator—Model 111B | 495.00 |

ULTRA-VIOLET MINERALIGHTS

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| Model H—Operates on 110 AC only | 12.50 |
| Model TH—Operates on 110 AC only | 19.75 |
| Model M12—Operates on batteries only—with battery | 40.65 |
| Model SL-2537—operates on batteries or 110 AC—without case and batteries | 39.50 |
| with case and batteries | 59.00 |

CHEMICAL TEST KITS

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| Kit for 14 minerals (Uranium not included) | 16.95 |
| Kit for 36 minerals (Including Uranium) | 31.25 |

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| "Prospecting with a Geiger Counter"—by Wright | .60 |
| "URANIUM Color Photo Tone" | 1.00 |
| "Facts You Should Know About Uranium" by R. W. Ramsey | 1.00 |
| "Uranium Prospectors Handbook" | 1.00 |
| "Uranium and Mineral Maps" | 1.00 |
| "The Uranium and Fluorescent Minerals" by H. C. Dake | 2.00 |
| "Popular Prospecting" | 2.00 |
| "Uranium, Where Is It and How to Find It" | 2.50 |
| "Minerals for Atomic Energy" by Nininger | 7.50 |

OTHER SUPPLIES

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| Prospectors Picks (polished) | 4.10 |
| Prospectors Picks (not polished) | 3.85 |
| Hardness Test Sets | 2.00 |
| Mineral Specimen boxes | 1.50 |
| Pocket Camp Stove | 6.95 |

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Mine Lost after One Wagon Load

"The Chocolate Mountains, southwest of Blythe, California, have always had a special place for me in the history of mining because they are surrounded with rich strikes and mines such as the Colorado Lode, the Montezuma, the Picacho and the Garibaldi, all of which have made a fortune for their owners. To the north was the rich placer strike at La Paz, to the east were the great silver and lead strikes and to the west and south were other hard rock operations. The last mentioned area is perhaps the most interesting because it brings us to the story we have to tell.

"Tom has a chunk of ore from the Choculates that looks real good. It should assay around \$800 a ton. We think it came from the area around Midway Wells because of the statement of the man that gave Tom the sample.

"Here is the story as I got it:

"My uncle worked at the Picacho Mine years ago and he and his partner were always prospecting the hills every chance they had. They discovered a likely showing and started a shaft. The old boys didn't file on the claim and no one paid any attention to their coming and going. In those days a lot of men started holes in the ground but when ore wasn't shipped you just figured a lot of wishful thinking and hard work for darn little money, if any at all.

"The mine was good. So good that they only shipped once. They brought it out in one wagon load and when it was sold, they quit the mining business for good. They were from the old time ranches, had been partners for years and had always wanted a little spread of their own. From the one load of hand picked stuff they got over \$10,000 and that was enough for what they wanted. They planned to go back some day if they needed any more, but they never did to the best of my knowledge.

"My uncle told me about his mine and gave me this sample when I was a boy. He said that it was his ace in the hole and that if he ever needed anything it was like having money in the bank.

"At the time he didn't give me any specific directions other than that it could be reached in one day's ride from the Picacho Mine, that it was on the other side of the Chocolate range, and that it was to the northwest. It may be there and might not—I didn't ever go look because I'm no prospector. If you boys want the sample, you can have it. Might as well do somebody some good."

"You can take the story for what it's worth. The sample is now club property and it won't hurt to run up there and look around a little anyway. (From an article by Stan Nelson in the *American Prospectors Journal*.)

Marie Kennedy writes from Blackwell that she has found what she believes are salt crystal casts in limestone. The occurrence is east of the little town of Braman, which is 10 miles north of Blackwell, Oklahoma. The limestone is easily split into any size slabs. On some of the pieces one may find the outline of inch size perfect squares. Marie says that she doubts that salt casts have ever been reported from so far north in Oklahoma.—*Sooner Rockologist*, Oklahoma Mineral and Gem Society.

During the months of June, July, August and September, meetings of the San Bernardino, California, Orange Belt Mineralogical Society will be held as pot-luck picnics on the first Sunday of each month at Sylvan Park in Redlands, according to Ora Slankard, Corresponding Secretary. All rockhounds are welcome.

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Miss Ruth Parker of Ventura, California, related her summer raft trip down Utah's Green River at a recent meeting of the Santa Barbara Mineral and Gem Society.

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**WHAT GOES INTO THE
ROCKHOUND'S OUTFIT?**

Field collectors may wonder what other field collectors take on their hunting trips. Here is a good list given in the St. Louis Mineral and Gem Society's bulletin *Rock Lore*:

First item is the geologist's or bricklayer's hammer. Sledges or mallets are used for heavy work. Cold chisels and pry bars are also useful. Other items include a small magnifying glass, newspaper to wrap specimens in, a stout bag, adhesive tape for identifying specimen, camera and first aid kit.

**BOOK GIVES BEST OF
URANIUM PROCEDURES**

Today's uranium rush differs in many ways from the gold rush of '49, not the least of which are the detailed guides that tell how and where to find the valuable ore. Gold prospectors had no such conveniences.

One of the most complete of these guides is the *Uranium Official Yearbook*, written and compiled by leading experts in the field and telling in detail exactly how to find uranium by automobile, on foot or from the air.

"In spite of the quick expansion in every area of uranium development, the known supply of U. S. (uranium) deposits is still far exceeded by the demand," the editors encourage.

"Your chances of finding (uranium) and making it pay will be much greater if you know the best places to look for it, the most efficient instruments for detecting it, the books, maps and tools that can help you locate it, the rules for protecting your rights to it and the way to sell it."

Thus the editors have told in one short paragraph the purpose and content of this handy booklet. Complete descriptions of general areas and the results of prospecting in them to date, values and faults of many types of Geiger and scintillation counters and the various methods and pitfalls of prospecting, assaying and staking claims—drawn from a wealth of experience—are described, making this booklet must reading for the beginning uranium prospector.

Published by the New Science Institute, 300 So. Beverly Drive, Beverly Hills, Calif., 82 pages, well-illustrated, \$2.00.

The Orange Belt (San Bernardino, California) Mineralogical Society's annual banquet was to be held May 3 with installation of officers as major item of business. Officers installed for the coming year are: Clarence Bonner, President; M. E. Boltz, Vice-president; Mary McCain, Recording Secretary; Ora Slankard, Corresponding Secretary; Andy Bossick, Treasurer; and Eileen Blue, Federation Director.

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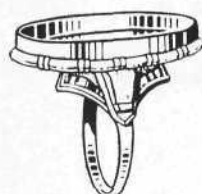
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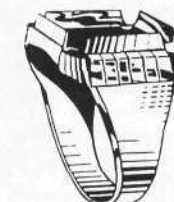
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SOME IDEAS FOR TUMBLING ROCKS

"Many articles have been written on tumbling agate and other semi-precious stones. I can only add a few ideas from my own experience," writes Carrie Heller, of the Minnesota Mineral Club.

"First, consider what you wish to do with the finished stone. If you want ear-wires, rough grind your pieces to match in shape, size and color. Then your finished stones will come out a fairly good match. This takes a little time, but the satisfaction you get from the finished article is well worth the effort. Bracelet stones need not match in shape or color, but should be almost the same size. I like to put at least one good point on small pieces to assure a good cap contact. Use your long slender pieces for end to end bracelets and necklaces.

"When you change grits, it pays to pull out pieces which need more grinding and put them in the next tub you start. Also, don't put quartz in with agate, especially if you have large pieces of agate in the tub.

"We use small pieces of hardwood in the polish mixture and end up with the same wood in three washings of Tide of 8, 6 and 4 hours each. After removing and washing in warm water, put them in a large bath towel and dry by tumbling around gently. Never put your stones in the tumbler with just water, and always clean the tumbler and stones well before each changing of grits. Use Tide once in the tumbler for about two hours before using polishing compound. Try zirconium oxide for polishing. It is very good and shouldn't cost over 50 cents a pound."

(From the *Rock Rustler's News*, publication of the Minnesota Mineral Club.)

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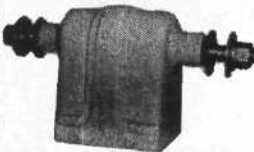


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| 80, 100, 120, 18, 220 | \$.83 | \$.52 | \$.39 | \$.30 |
| 2F (320), 3F (400) | .38 | .57 | .41 | .32 |
| Graded 400 | 1.09 | .73 | .57 | .48 |
| Graded 600 | 1.35 | .94 | .78 | .69 |

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| 10" wide, 5 ft. long— | 2.00; 150-foot roll— | 39.77 |
| 12" wide, 5 ft. long— | 2.25; 150-foot roll— | 47.70 |

Wet Rolls

| | | |
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| 3" wide, 10 ft. long— | \$2.00; 150-foot roll— | \$21.60 |
| 10" wide, 40 in. long— | 2.60; 150-foot roll— | 71.25 |

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Available in 120, 220, 320 grits

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| 6" 5 for \$1.00; 25 for \$ 3.90 | 8 for \$1.00; 25 for \$ 2.25 |
| 8" 3 for 1.10; 25 for 7.00 | 5 for 1.00; 25 for 4.10 |
| 10" 2 for 1.15; 25 for 11.00 | 3 for 1.00; 25 for 6.45 |
| 12" 2 for 1.65; 25 for 16.00 | 2 for 1.00; 25 for 9.45 |

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CALIFORNIA COLLECTING AREAS WELL DESCRIBED

A Current Status Bulletin of popular
rock collecting areas in California is avail-
able from Mary Frances Berkholz, Cal-Rock
Ranch, Rt. 1, Box 49, Little Rock, California.

Here are a few of the notes, supplied by
the California Federation of Mineralogical
Societies for its members:

Tick Canyon: A new road is being built
through the area and goes right over the
old mine dump. The road department must
have had the rockhounds in mind, however,
since they have graded a side road, making
it possible to drive the car right up to the
collecting area. You can park and toss the
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Peanut Geode Beds, near Vasquez Rocks,
Los Angeles County: We are sorry to re-
port another favorite area has been closed.
Road work has been completed and the
collecting area is heavily posted with "No
Trespassing" signs.

Hidden Canyon, Bullion Mountains, site
of the 1954 desert seminar: We have had
many inquiries as to whether this area is
open to collecting or not. The area is closed
and we warn you not to attempt to go in.
The Marine base will take action against
anyone trespassing.

Mojave Desert areas: The recent heavy
rain and snow has brought some new ma-
terial to the surface in most of the desert
collecting areas. Be sure and plan several
trips for your club to the desert.

(From Field Trip Bulletin No. 1 of the
California Federation of Mineralogical So-
cieties.)

INTERNATIONAL EXPOSITION SET FOR JUNE IN 'FRISCO

Outstanding among history's rockhound
shows should be the International Gem and
Mineral Exposition set for the Civic Audi-
torium in San Francisco, July 8-10.

The Exposition is presented jointly with
the 16th Annual Convention of the Califor-
nia Federation of Mineralogical Societies
and is hosted by the San Francisco Gem and
Mineral Society.

Special exhibits for the show will include
the jade work of Sheu Tse Koo, Chinese
lapidary of San Francisco, who will dem-
onstrate the old method by which jade is
carved in China. Julius Gisler will show
his collections of fine benitoite and nep-
tunite, unusual smoky quartz from Switzer-
land, octahedral crystals of pyrites and other
top mineral specimens.

DESERT QUIZ ANSWERS

Questions are on page 8

- 1—Bird.
- 2—Navajo.
- 3—Weaving.
- 4—Presbyterian.
- 5—Turquoise.
- 6—Writer.
- 7—Death Valley.
- 8—Transportation on water.
- 9—Acoma.
- 10—Yellow.
- 11—Copper.
- 12—San Jacinto peak.
- 13—Lake Havasu.
- 14—Corn.
- 15—Roosevelt dam.
- 16—Salome, Arizona.
- 17—Tombstone.
- 18—Lost Dutchman mine.
- 19—Arizona.
- 20—Bosque Redondo.



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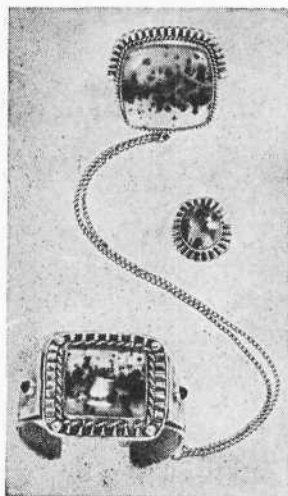
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earrings, matched sets\$1.00
Baroque Bracelet Kits—s/s or g/f.....\$3.50
Baroque Earring Kits—s/s or g/f.....\$1.75
Glyptol Cement, tube\$.60
Please add 10% federal tax and postage

Nebraska Rock Club Learns Tricks of Optical Mineralogy

It is a simple matter to see through clear rock crystal, such as quartz. Most other rocks, which are quite opaque in ordinary conditions, may be seen through when ground into very thin pieces. In general, the only exceptions are minerals having metallic luster, such as galena, pyrite and the like. These minerals do not transmit light, no matter how thin they may be cut.

Slices of rock prepared to be looked through are known as thin sections. These thin sections enable one to see more identifying characteristics and make possible the identification of the mineral constituents of the rock.

Thin sections are made by first slicing the rock. The slice is then ground on one side, on a horizontal lap, to a high degree of smoothness. Final finishing is done by hand, with polishing powder on a glass plate, to make one side smooth and as perfectly flat as possible. The smooth side of the rock slice is then cemented to a glass microscope slide and the other side of the piece is ground and finished in the same manner. The thickness of the finished piece or thin section is about 30 microns, or 12/10,000 of an inch. This thickness is not measured directly, but instead is estimated by the apparent color of the known mineral, when viewed under polarized light.

Most minerals, in fact, all crystalline substances with the exception of those belonging to the isometric system, are doubly refractive: that is, they split light into two rays, one of which is refracted or bent more than the other. The interference of these two rays damps out some wave lengths of white light and reinforces others to produce the colors seen in a rock slice between properly adjusted polarizers.

In practical work, a microscope equipped with two polarizing prisms, called the polarizer and the analyzer, is used to identify the various minerals by their color pattern. For mass viewing, a lantern slide projector, equipped with two polarizers is used. The polarizers are adjusted at right angles, thus no light can pass through except when a doubly refracting material is placed between them.

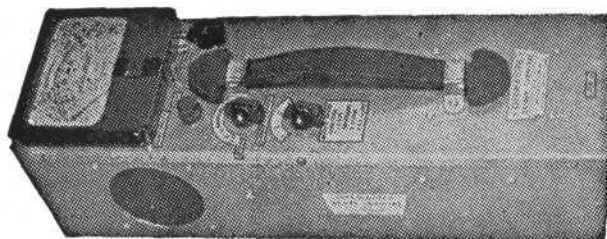
Thin sections placed between the polarizers will doubly refract and repolarize the light, allowing some light to reach the viewing screen. The light passed through is colored, but this color is not the color of the mineral. The color transmitted is a

property of the mineral and depends on the nature and orientation of the crystalline structure and the thickness of the section. The thickness of known minerals can be determined by observing the color and referring to established color charts.

Likewise, once the thickness is known, the identity of other minerals in the rock can be determined by comparison of colors with established color charts. Other properties, such as crystal form, color in ordin-

ary light, cleavage or fracture, twinning, refractive index, and relation of optical properties to crystal form must also be used for positive identification of most minerals.

A most striking example of colors formed by double refraction and polarized light can be had by placing an ordinary piece of folded cellophane between crossed polarizers, such as a pair of lenses from cardboard spectacles used to view 3-D movies. Just tear the spectacles in two, place one lens over the other and insert a piece of folded or crumpled cellophane between them. Muscovite mica is a mineral which is readily obtainable in flakes thin enough so that brilliant colors may be seen when viewed between polarizing lenses in the same way. (Excerpts from a talk on optical mineralogy by Ralph Austin at the Nebraska Mineral and Gem Club, Omaha.)



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By RANDALL HENDERSON

WE ARE ABOUT to witness a David and Goliath encounter out here on the Southern California desert—and I want to be on record as a staunch supporter of David.

The story is this: For more than 10 years the U. S. Navy has maintained a road-block on one of the most important routes in the lower Colorado River basin—the road between Imperial and Palo Verde Valleys, the two most productive irrigation projects on the California desert. The distance is 75 miles.

It started during World War II when the naval chiefs, as a wartime emergency, established a great aerial gunnery range between the Chocolate and Chuckawalla mountain ranges—astride the road connecting Blythe in the Palo Verde Valley with Niland-Brawley-El Centro-Cal-exico in the Imperial Valley.

When the war was over the Navy decided to keep the range, although it is 50 miles from the Naval station at Seeley, California, and is used only a few weeks of the year.

The supervisors of Imperial County reluctantly agreed to the closure, on the condition that the Navy would arrange for the construction of a by-pass road around the gunnery range.

Six years have passed, and nothing has been done about the new road. Growing resentment in Imperial Valley reached a climax late in April when the Imperial County board of supervisors announced that on July 1 they are going to reopen the road—navy or no navy.

Navy spokesmen have retaliated with the statement that if they cannot have the gunnery range, they are going to close the Naval Auxiliary Air Station at Seeley. So the feud is on.

I hope the Imperial Valley officials will stand pat on their demands. From the standpoint of the economy of the Imperial Valley, more is to be gained in the long run from a paved road connecting this rich valley with Highway 60 at Blythe than from the naval installation at Seeley.

And there are many other reasons why the desert domain extending from the Chocolates to the Chuckawallas, and from Salt Creek on the west to Wiley's well on the east should remain open to the public. Botanically, this is one of the most luxuriant natural desert gardens on the Southern California desert. It would provide space for thousands of Jackrabbit homesteaders, and it was a happy hunting ground for prospectors and rockhounds until the Navy posted its "No Trespass" signs.

The Imperial Valley supervisors have good cause for the stand they have taken, and they will have the moral support of a multitude of desert dwellers and travelers who have felt a growing resentment at the gradual peacetime encroachment of the naval and military forces on the deserts of the Southwest.

Goliath in this instance, is a formidable opponent—

but according to legend David won the last duel because his cause was just. * * *

It is unfortunate that the Navajo Indians have been drawn into the controversy that centers around the Upper Basin State project now before congress. Obviously, the much publicized War Dance which the Indians staged at Window Rock was staged as a publicity stunt on behalf of the Upper Basin states.

The Navajos have a very great need for a dam in the San Juan River to provide water for their arid lands, and if this single project could be placed before congress on its merits, it should pass with very little opposition.

Much of the Upper Basin reclamation project has merit, but it is wrapped up in too big a package. The proposal to build 9 dams, including two in the Dinosaur National Monument, has aroused a storm of opposition which makes the final success of the program doubtful, even though it has been given Senate approval.

The package deal places many of us in a dilemma. We would like to see the Navajos get their water, but we are unalterably opposed to the exploitation of the Dinosaur National Monument—or any other national park or monument, for commercial gain.

Under the circumstances those of us who feel that the national park system must be kept inviolate, will do what we can to defeat the package project—and if and when that is done, I feel that we have an obligation to help the Navajos get their San Juan River dam. * * *

Some days, when the pressures of the daily routine—the deadlines, the manuscripts to be read, the letters to be answered, the meetings to attend—become oppressive, I envy my friends the Walkers who live on their Gold Rock ranch not far from Ogilby, California. They are busy folks, too, but their cabin is so far removed from telephones and paved roads and committee meetings they can plan each day's activities with assurance that there will be few distractions to interfere.

One of the rare gifts which the desert has to offer is the opportunity for solitude—and the Walkers have a big measure of it. Anne Lindbergh in her latest book, *Gift From the Sea*, stressed the importance of solitude. She wrote:

"Every person, especially every woman, should be alone sometime during the years, some part of each week and each day. . . . The world today does not understand, in either man or woman, the need to be alone. If one sets aside time for a business appointment, a trip to the hairdresser, a social engagement or a shopping expedition, that time is accepted as inviolable. But if one says, I cannot come because that is my hour to be alone, one is considered rude, egotistical or strange. What a commentary on our civilization, when being alone is considered suspect; when one has to apologize for it, make excuses, hide the fact that one practices it—like a secret vice!"

BOOKS of the SOUTHWEST

BOOK OF PICTURES IS KEY TO DESERT

It has often been heard said: "If I just had a picture of the desert animals and plants it would be an easy job to learn about them and identify them."

The Desert in Pictures, published by the Palm Springs Desert Museum, California, meets this need. In 55 amazingly clear and concise pictures it presents the California desert, its geology and geography, its flora and fauna and its culture. Most of the pictures are from the files of *Desert Magazine*.

The booklet is edited by Edmund C. Jaeger, D.Sc., formerly head of the Department of Zoology, Riverside College, California, and now curator of plants at the Riverside Municipal Museum.

"The desert is a region of extremes: violent winds—balmy breezes, searing heat—biting cold, dead silence—myriads of sounds. Its torn hills and sandy wastes, teeming with life that is too seldom observed, possess fantastic and ever-changing colors and are marked by swiftly passing moods," the editors say in the introduction. "It is the purpose of this booklet to bring . . . something of these phenomena with the hope that you will find greater appreciation for, and greater joy in, the wonders of our desert."

Printed by Desert Magazine Press, paper bound, 42 pages, 50 cents.

FAMOUS DESERT FILM NOW IN BOOK FORM

What was called the most authentic and beautiful moving picture of the desert ever produced, Walt Disney's "The Living Desert," has now been turned into a book of the same name.

The first of Disney's True Life Adventure books, *Living Desert* is illustrated with full-color photographs, taken especially for this project. The text amplifies the story told in the film's narration.

Animals in their wild state are the only characters in the book—the deadly Gila Monster, venomous rattler and king snake, the sharp-taloned hawk, the furry, eight-legged tarantula, ground squirrels, the kangaroo rat, tortoises, beetles, owls and others—all play their natural roles in the book, just as they did on the screen.

The last section of *Living Desert* describes the desert after winter rains when, for a brief period, it bursts into glory, carpeting all with brilliant or gentle hues.

Thus the full picture of the desert is

painted in this outstanding book—a well-told cycle of activity. "For Nature's design for the desert is a permanent one," say the authors. "Nature preserves her work, and over the long eternity of time perpetuates one of her greatest miracles—the endless wonder of the Living Desert."

Published by Simon and Schuster, New York, 124 pages, scores of photographs and drawings, \$2.95.

BOOK IS GUIDE TO DESERT VALLEY PLANTS

One evening several years ago a night school class of adults at Coachella Valley (California) High School was busily engaged in identifying the complex assortment of plants native to the valley. A comment was made that there ought to be a key to the plants that would make their job a little simpler.

Thus, the idea of *The Key to Plants and Places of Interest in Coachella Valley* was born. Before long the entire class was engrossed in production of this booklet which today is an ideal guide to the Coachella Valley.

Sixty-six of the most common plants are well described in *The Key*, which also includes numerous illustrations and a map and description of interesting places to visit in the valley.

Before launching into a detailed description of these plants, *The Key* discusses four areas of the Coachella Valley, which extends from Whitewater, at the mouth of the San Bernardino-San Jacinto mountain pass, to the northern reaches of the Salton Sea. Certain plants are typical of the valley entrance, while others are more often found in the valley center, the valley bottom or the valley sides. Trees, cactus, wildflowers, shrubs, bushes and weeds all receive attention in the booklet.

Published by the Department of Adult Education of the Coachella Valley Union High School District, 67 pages, well-illustrated with photographs and line drawings, paperbound, 85 cents.

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THE MODERN FLOOD CONTROL PROBLEM

Here is a hard-hitting, controversial book, written by Elmer Peterson, the soil and conservation expert. *Big Dam Foolishness* is a statistical book, offering facts and figures as to why water should stay where it falls, rather than being dammed as the Army engineers see and do it.

Against the proposed series of large reservoirs in the valleys of the rivers of the nation, Elmer Peterson proposes the agricultural flood control program. This would stop water where it falls, conserve the topsoil and give a high water table with increased underground water storage. It would include small detention reservoirs, constructed at a lower cost than the dams now built.

The growth of cities and consequent thirst of its people cause the "misplacement of water" from the countryside, necessitating its being brought great distances. Peterson, himself owning a farm, understands the need of the farmer to save his farm and valley, where in so many instances it is inundated by reservoirs of dams.

Published by Debin-Adair Company, New York. Illustrated with photographs and drawings; complete with glossary. 224 pages. \$3.50.

Books reviewed on this page are available at
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