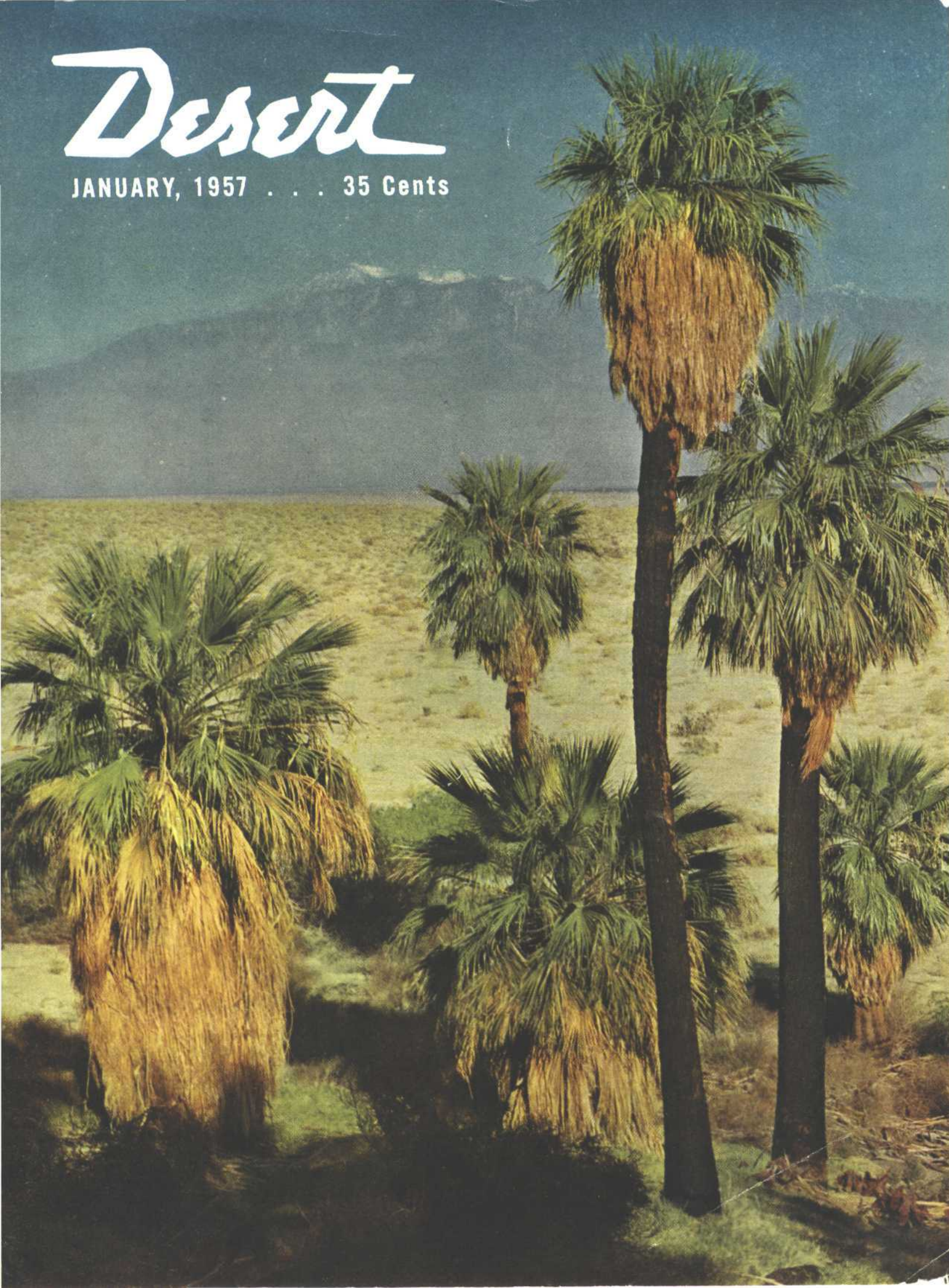


Desert

JANUARY, 1957 . . . 35 Cents





PUEBLO PANORAMAS IX

WALNUT CANYON

By JOHN L. BLACKFORD



Cliff Apartments

Under overhanging strata along the precipitous 600 foot inner walls of Walnut Canyon east of Flagstaff, Arizona, an ancient cliff people built communal dwellings perhaps a thousand years ago. Apartment-like rooms, in long connected rows, utilized every suitable site of southern exposure. Fortified promontories guarded approach to the densely populated gorge. Limited to this simple architecture, these canyon Indians grew skilled in their various handicrafts.



Canyon Vista . . .

Views from cliff edge and doorway in Walnut Canyon afforded no spectacular scenery. But the wooded walls of their rocky stronghold must have filled the early dwellers with a sense of security; and the narrow, pinyon and juniper clad defile, with its torrent roaring below in spring, surely moved primitive hearts with its rugged beauty.

DESERT MAGAZINE

DESERT CALENDAR

- January 1—Comanche War Dances, Ranchos de Taos, New Mexico.
- January 1—Deer, Los Matachines or Turtle Dance, Taos Pueblo, New Mexico.
- January 1—New Year Cup Races, Arizona Snow Bowl, Flagstaff.
- January 1—Sun Bowl Carnival and Football Game, El Paso, Texas.
- January 1—Annual Rodeo, Kinsley Ranch, Tucson, Arizona.
- January 1-31—Harwood Foundation Art Exhibit and exhibition of Indian Arts and Crafts at Rogers Museum, Taos, New Mexico.
- January 2-5—Arizona National Livestock Show, Phoenix.
- January 6 — Buffalo Dance, Three Kings' Day Ceremonials, Taos, New Mexico.
- January 6—Dances and Installation of Governors in various Rio Grande Pueblos in New Mexico.
- January 6—Twelfth Night, Burning of the Christmas Trees, Raton, New Mexico, and other Spanish-American Settlements.
- January 6-10 — American National Cattlemen's Association Convention, Phoenix, Arizona.
- January 6-30 — Exhibition of Oil Paintings by Nancy Barnhisel, Addington Gallery, Desert Hot Springs, California.
- January 10-12—Third Annual Lettuce Festival, El Centro, California.
- January 12-13—Yuma County Chamber of Commerce's Bandollero Tour to San Felipe, from Yuma, Arizona.
- January 13—Western Saddle Club's Little Stampede, Phoenix, Ariz.
- January 15-17 — Desert Senior Golf Association Tournament, Palm Springs, California.
- January 18—Southeastern New Mexico Hereford Show and Sale, Roswell.
- January 18-19 — Southern Arizona Square Dance Festival, Tucson.
- January 19-20—Sierra Club Hike to Phantom Canyon and Enchanted Valley, near Thermal, California.
- January 20—Trek to King's Canyon for Winter Visitors, sponsored by Mesa, Arizona, Jaycee.
- January 21-22—Solar Furnace Symposium, Phoenix, Arizona.
- January 23 — Fiesta and Buffalo Dance, San Ildefonso Pueblo, New Mexico.
- January 25-26 — Annual Western Dance, Clayton, New Mexico.
- January 25-27 — Gold Rush Days, Wickenburg, Arizona.
- January 26-27 — Sierra Club Desert Peaks Hike to Sheephole Mountains, between Twentynine Palms and Amboy, California.
- January 27—Buffalo Barbeque, Mesa, Arizona, Civic Center.
- January 29—Annual Snow Bowl Ski Carnival, Flagstaff, Arizona.
- January 31-February 3 — Phoenix, Arizona, Open Golf Tournament.



Volume 20

JANUARY, 1957

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RANDALL HENDERSON, Editor
BESS STACY, Business Manager

EUGENE L. CONROTTO, Associate Editor
EVONNE RIDDELL, Circulation Manager

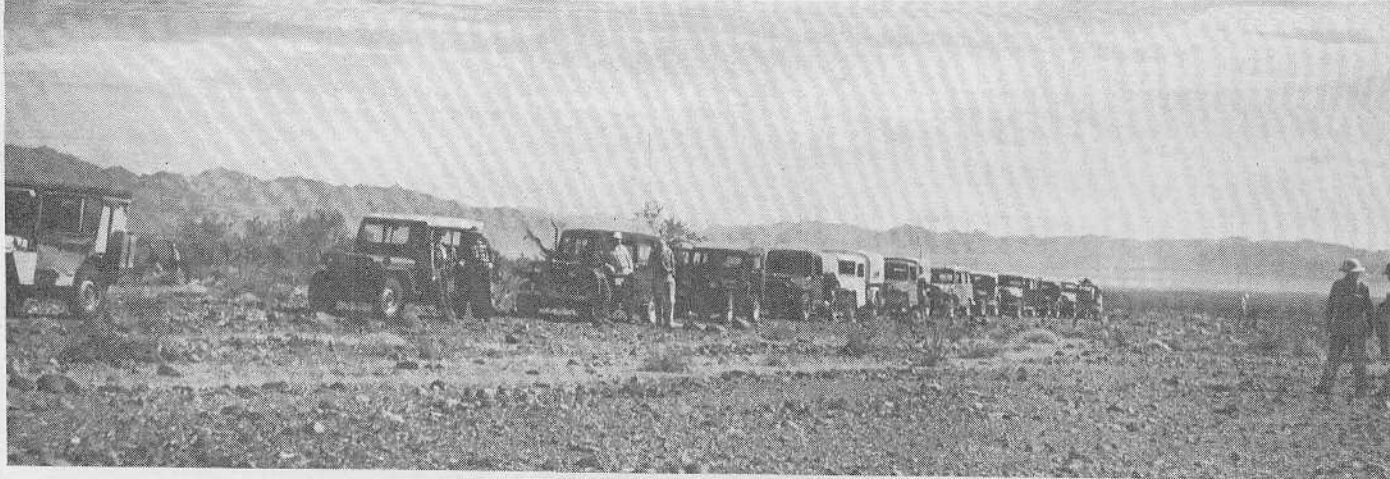
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The jeep caravan that re-opened the old short-cut trail into Chuckawalla Spring.

We Took the Old Trail to Chuckawalla Spring

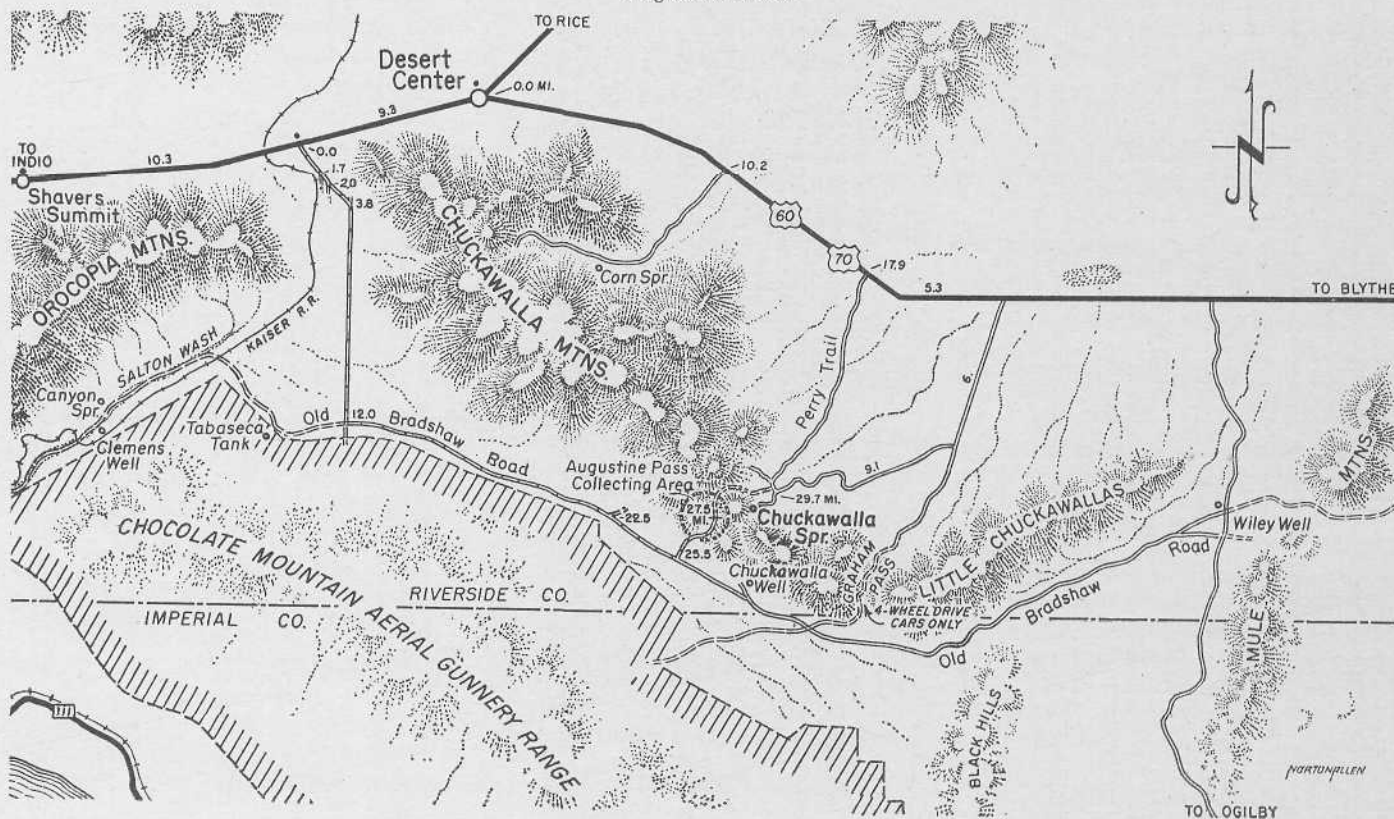
Hidden away in a remote canyon in the Chuckawalla Mountains of Southern California is a historic old waterhole—the rendezvous of prospectors and homesteaders for three quarters of a century, and more recently a good hunting ground for rock collectors. Geodes are found on the hills for many miles around the Spring. Here is the story of one of the most recent expeditions to Chuckawalla Spring.

By RANDALL HENDERSON
Map by Norton Allen

"SOME OF the rockhounds want us to show them the old road to the geode field at Chuckawalla Spring," Loren and Rose Perry of Pasadena wrote me in 1953. "We have been over the route in a jeep, and it saves a lot of mileage. We'll be glad to have you join us," they added.

This was an invitation I was eager

This map by Norton Allen is a revision of the map which appeared in the May '56 issue of Desert Magazine with Harold Weight's story of the geode field at Augustine Pass.





Someone found a trace of placer gold in the arroyo below Chuckawalla Spring and this is the camp occupied by the prospectors during the "boom" that followed the discovery.

to accept, for it had been nearly 18 years since I had visited this remote waterhole. Although this was one of the first geode fields to be discovered by the rock collecting fraternity on the Southern California desert, its inaccessibility and the discovery of more and better geodes in the area of the Hauser beds to the southeast had left the Chuckawalla Spring practically undisturbed for many years.

There were delays in arranging the trip, and it was not until the weekend of April 14-15 in 1956 that our jeep party was organized for the excursion.

Our Friday night rendezvous was along Highway 60-70 where the side road takes off to the oasis at Corn Springs. There we camped overnight, ready for an early morning start along the route Loren Perry would show us.

Fifty years ago the Chuckawalla Valley where we were camping was taken up in 160 and 320-acre desert claims by Southern California families who were led to believe that irrigation water would be brought to this desert sink from the Colorado River. For nearly four years Los Angeles real estate men did a thriving business locating claims for the settlers at a fee of \$1.00 an acre. The settlers were organized and raised many thousands of dollars for exploratory work for a possible damsite along the Colorado above Blythe, and for surveying a possible canal to the Chuckawalla. It would have been a very expensive project, and congress could never be induced to appropriate money for the dam and canal. The project eventually died.

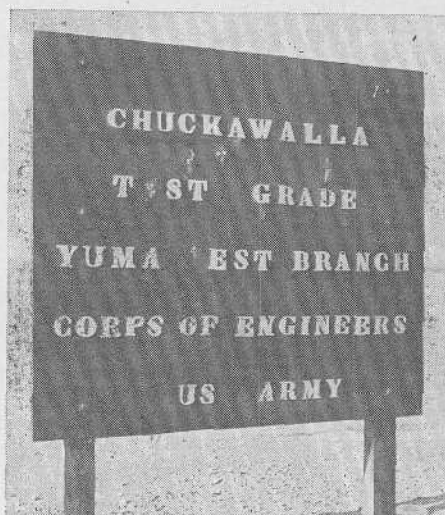
During the period of the land rush many rough wagon trails were made

across the Chuckawalla Valley, one of them to Chuckawalla Spring which was one of the few places where good drinking water could be obtained.

Later a showing of placer gold was found in the gravel banks below the spring and for a period of 15 years there were always two or three or a half dozen prospectors camped here working the gravel or prospecting the Chuckawalla and nearby mountain ranges.

On one trip to the Spring in the early '30s I found my old friend Justus Smith living in a tent while he panned gravel. Justus was a veteran prospector who had once filed on a homestead in the Palo Verde Valley. I knew him there in the days before World War I when I was publishing

This sign board 23 miles east of Desert Center marks the turnoff for those taking the best road to Chuckawalla Spring.



the Blythe Herald and Justus came to town occasionally for grub.

He was in his late 70s when I saw him at Chuckawalla Spring, and nearly blind. Desert Steve Ragsdale had provided a home for the old man at Desert Center, but Desert Center was too dull for him, with nothing to do. He disappeared one day and Steve, following a hunch, found him trudging along over the desert in the direction of Chuckawalla Spring. He wanted to be in the hills with his gold pan.

So Steve put up a tent for him at Chuckawalla Spring, and once a week took groceries out to him. The day I walked into his tent he was fumbling with the canned goods on the table.

"Will you tell me which can has the pork and beans?" he asked. And then I knew the truth—that Justus Smith was too blind to read the labels on the cans. But he was happy out there, and when no one was around to read the labels he ate what was in the can he had opened. He never knew whether his meal would be fruit or vegetables or meat—until he opened the can. But he never complained. He was doing what he wanted to do.

Steve Ragsdale always insisted that although Justus' vision was so dim he could barely find his way to the spring and back, he could always see the color in his gold pan when he was working in good gravel.

Justus Smith has long since gone over the hill to a good prospector's reward, and today Chuckawalla Spring is a deserted place, except on those rare occasions when the rockhounds find their way to this waterhole—and the geode beds nearby.

On the April morning of our recent

How and Why People Become Rockhounds

At the campfire program of those who accompanied Loren Perry's Chuckawalla Spring geode hunt, members of the caravan responded to roll call by telling briefly when and why they became interested in the hobby of stone collecting and polishing. The following summary of the answers probably is a fair cross-section of the hundred thousand or more Americans who have taken up this hobby:

SAM PAYSON, investments, Calexico, California — "In 1935 I was with the Kennecott Company in Alaska on a mining venture. The terrain was frozen and there were no facilities for recreation so we passed our leisure hours cutting azurite-malachite specimens with a file. Back in the States again, and on the desert, I just wanted to see what it would be like to cut gem stones with proper tools—and I am still at it."

LEO D. BERNEN, retired, Glendora — "In 1939 I accompanied my son, a high school student in geology, on a field trip to the blue agate country north of Barstow. Then I was invited over to the school lapidary to help cut the specimens. It was a fascinating hobby—and I wanted more of it."

GEORGE E. MOORE, Imperial Irrigation District superintendent in Imperial Valley — "My interest in gem collecting began in 1915 when I would tramp along the beach looking for moonstones. Later, in Imperial Valley, I arranged for the loan of a Bulldozer to the county for cutting a road through Graham Pass in the Chuckawalla Mountains. The big cat turned up a lot of good gem stones—and I became a collector."

GEORGE TIPPIE, manufacturer of the Tippie Saw, Pomona — "I've been interested in stones ever since I was a small boy. The interest became a real hobby for me in 1939 when John Bryce took me out on a field trip. Since then I never miss a chance to make a weekend trip into one of the desert collecting areas."

CHARLES HOLTZEN, naval shop foreman, Imperial — "My interest in rock collecting began in 1939 when I saw pictures of the Graham Pass collecting area in the *Desert Magazine*. I followed the map that was published with the story—and I have been at it ever since."

PAUL WATT, estimator at Convair, Pomona — "My wife Ruth is always looking for the beauty in things, and when she saw what the cutting saw and polishing tools would do with an ordinary stone she urged me to take lapidary lessons. Then when I went to Convair, the employees formed a rock club and secured equipment for cutting and polishing. I've gone through all the stages, first collecting, then lapidary work, and now I am making jewelry. And Ruth is just as enthusiastic as ever—she never misses a chance to go on a field trip."

C. R. PATTON, department superintendent for City of El Centro — "My wife and the *Desert Magazine* teamed up to make a rockhound out of me. I used to fish and hunt at every opportunity. Rock collecting, I thought, was a dull pastime. But when we were out on trips my wife was always buying rocks—and finally she persuaded me to make a field trip up to Graham Pass. Of course we ended

by buying lapidary equipment and now we are dyed-in-the-wool rockhounds."

BILL JORDAN, insurance and rentals, Long Beach — "I got the rock-pox 10 years ago after meeting Ray Wilson. When Long Beach had a show I was amazed at the beauty of the stones I saw there, and when I was invited to go on a field trip to Lead Pipe Springs I found some nice specimens—and now I have the house full of them."

ARLIE TOULOUSE, boat-builder, Costa Mesa — "I was once an ardent yachtsman, and sometimes picked up moonstones on the beach. Somehow, after a couple of years I ended up with a jeep instead of a boat. My wife is a fine camper and an enthusiastic rock collector—and we have great trips together."

GORDON and **ELLA MOORE**, banking, Pomona — "My interest in rocks began when I was camping with Boy Scouts on the shore of Salton Sea, and we asked John Hilton to give us a campfire talk. Of course John talked about stones. Then after World War II the doctor ordered me to spend as much time as possible on the desert. Then I met Loren Perry and saw his beautiful collection of stones and now I've become a regular field tripper. Loren taught me all I know about stones."

AL MAINS, school superintendent, Calexico — "My dad was a prospector-miner in Colorado, and of course I had minerals in my veins. Then in 1928 I came to Calexico as a teacher, and I found that one of the best places to take my girl friend on a Sunday afternoon date was out on the mesa where we looked for pretty stones. My first field trip was 20 years ago when I hiked over the Chuckawalla range with Wilson McKenney and Randall Henderson to Chuckawalla Spring looking for geodes."

EDWARD S. ROGERS, county service, Altadena — "I used to hunt for Indian artifacts. One trip took me to Oregon where I found some beach agates. When I broke them open I found a striking pattern inside. That was my start—and a little later I built a mud-saw to keep from having to break the rocks to see what was inside."

FORREST L. MAGINNIS, oil auditor, Arcadia — "I had tried out many hobbies. Then one day when I went into a jewelry store and saw a fine collection of stones and learned that many of them could be obtained within a day's travel of my home, I decided to take up lapidary. I went on a rock trip with my Dad to Mule Canyon looking for palm wood. I didn't know what I was looking for, but I dug anyway. But fossilized palm wood isn't very pretty until it is polished, and after a friend told me what equipment to get I bought an outfit—and I am still polishing stones."

LOREN PERRY, printer, Pasadena — "My folks were miners in Colorado so

I knew something about rocks. Reading the *Desert Magazine* I decided lapidary was a good hobby, and by the time World War II came I was able to qualify as a lens grinder. Rose and I both love to camp and tramp over the hills in quest of cutting material."

JACK BITTNER, with Convair, Pomona — "My first field trip was to the Wiley's Well area, and I landed in the geode area the day after one of the rock clubs had been there. It was rather discouraging to find that so many of the geodes had been broken. Then Convair started a gem and mineral club and I received my initiation into the fraternity."

HORACE MINNS, Long Beach — "I became interested in rocks in 1946 when the Long Beach gem and mineral society was doing a first class job of recruiting new members. I attended one of the shows and was fascinated by the beautiful rock displays. I guess most of us have a yen to strike it rich, and perhaps that motivates the prospecting field trips. I have made all my own lapidary machinery."

BILL MATTSO, inspection department at Convair, Pomona — "I came to California two years ago from Pennsylvania where rocks are only rocks. But I love the mountains and the desert, and these field trips are a lot of fun even when I do not get any prize specimens."

MRS. HARRY BRIDWELL, Pomona — "I have been interested in rocks since I was a little girl. Then when we came to California in 1940 we started reading *Desert Magazine*. As soon as the children were old enough we started going on field trips, even when they were so small Harry had to carry them on his shoulders. The youngsters are the best rockhounds in the family."

JIM RITTENHOUSE, farmer, Azusa — "Catherine and the children and I became interested in rocks when a family of rockhounds moved next door. They would show us their specimens and tell us about their trips. In 1940 we accompanied them on our first field trip, and a year later went again. By 1947 we were so interested I bought a lapidary outfit and now the place is piled up with stones waiting to be cut." (The neighbors were Harry and Molly Ohlsen.)

GRACE JOHNSON, secretary, Glendale — "A few years ago I saw a display of polished gems, and the next day read an ad in the paper by a lapidary teacher who was forming a class. I answered the ad and now I have my own equipment and am making jewelry."

MARGUERITE WILSON, clerk in city schools, Pasadena — "In 1937 on a motor trip with my mother I saw Earl Shaw's sign in Yermo advertising Thundereggs. We stopped and bought a bag of rocks, and tried to remember the names Earl had given us. After that we stopped whenever we came to a rock shop. As soon as we reached home I joined the Los Angeles Lapidary Society and studied cutting and polishing in night school. I now have my own jeep — the only woman member of The Jeepherders."

trip, Loren and Rose Perry piloted our jeep caravan along Highway 60-70 to a point 7.7 miles east of the Corn Springs turn-off, and then left the highway on a dim trail that pointed toward the Chuckawalla Mountains 11 miles to the south of us.

It wasn't much of a trail. Originally there had been a road of sorts across the bajada to the Spring, but in many places storm water had destroyed all trace of it. But Loren knew where he was going and while we had to use our 4-wheel drive, sometimes in low gear, we eventually reached the old Augustine Pass road, and with a short jog to the left entered the canyon in which Chuckawalla Spring is located.

The Perry Trail is strictly a jeep road and while it saves nearly 12 miles compared with the better road to the east, I would not recommend it except for those who prefer the rough rocky trails which only a jeep can navigate.

At the entrance to Chuckawalla Spring canyon is a battered old sign which reads: "Desert Center 37. Blythe 40. Chuckawalla Spring 3."

The 3-mile road up the canyon to the Spring is heavy, but not impassable for a standard car with low pressure in the tires. A half mile from the sign, where the road follows a gravel bench we saw the remains of the camp that was once occupied by placer miners. In the bank along the arroyo are caves where some of the old-time miners lived. The wreckage of a couple of dry washers, and the usual debris of an abandoned mining camp is scattered over the ground. Further up the canyon on a bluff overlooking the arroyo is an abandoned cabin to which water had once been piped down from the spring.

We parked our cars just below the Spring. From this point it is an easy hike up and over the hills which carry a great variety of chalcedony and agate cutting material. Much of the surface material has been broken by the hand picks of a generation of rockhounds but there is still a vast store of banded, moss and picture rock below the surface—to be revealed eventually by the forces of erosion or excavated by those who will make the effort to reclaim it.

We found two men from the California department of Fish and Game camped at the spring, building a protective wall to prevent it from being sanded up by the storm water which comes down the wash occasionally. This is a watering place for a wide variety of wildlife, including mule deer and game birds, and while the state men were interested primarily in the game birds and animals of the area, their project also will insure an adequate water supply for the prospectors



Chuckawalla Spring, protected by the rock wall installed by the Fish and Game department. At the time this picture was taken the wall was still under construction and the milky tint of the water is due to construction work. Normally the water in the Spring is clear and sweet.

and rock collectors who still come here.

One may find chalcedony and agate at many places in the Chuckawalla Mountain area, and our party spread out in all directions, one group going through Augustine Pass to the geode field on the other side of the range. The pass is too precipitous for any but a 4-wheel drive car.

That night we camped in a wide sandy wash at the base of the Chuckawallas where firewood was abundant. Some lovely specimens of cutting stone were exhibited by the collectors.

At the campfire that night part of the program was devoted to a roll call in which each of those present was asked to tell when and why he or she became a rockhound. The response was a revealing cross-section of the people who collect rocks as a hobby. A brief summary of the "confessions"

is given on another page of this *Desert Magazine*.

Some collecting was done the following morning but by noon most of the party had taken the route toward home.

We were grateful to Rose and Loren Perry for an enjoyable weekend, and some of the jeeps returned over the trail by which we had come to Chuckawalla Spring. Others preferred the longer route back to Highway 60—six miles of which had been graded by bulldozers during the period when Patton's army was in training in this area. Norton Allen has shown both routes on the map accompanying this story.

Chuckawalla Spring is a historic old waterhole — a rendezvous where for more than 75 years the prospectors and homesteaders and rock collectors have found a good supply of sweet water—and the solitude which is often a good tonic for human ailments.



DESERT PAINTING

By CLYDE DAWSON
Anaheim, California

When it's evening on the desert,
Purple shadows gild the sand
Like an undulating carpet,
Stretching out to fairyland.

With the colors of the rainbow,
Mother Nature tints the scene,
Painting flowers, rocks, and cactus
On a canvas brown or green.

For the Joshua tree and Yucca,
For the Greasewood and the Pear,
And for every bush and thicket,
Just the tint that should be there.

And the painting, when it's finished,
Spread from Heaven to the sod,
Like the canvas of a master,
Is the handiwork of God.

ALL WAS BEAUTY HERE UNTIL HE CAME

By DARRELL TOTTEN
Henderson, Nevada

The desert is rife with its insect life,
From chiggers to great dragon-flies.
I've studied them all; the large and the small.
There's just one bug that I despise.

When hillsides are green, this insect obscene
With used tissues, dots the grass white.
He goes with the breeze, and spreads a disease
Called beer-can-and-pop-bottle-blight.

He's quite hard to find, yet only the blind
Can miss the broad trail that he makes.
Wherever he's been, glass, paper and tin
Prove he gives much more than he takes.

By cigarette packs I've followed his tracks
To the tops of high mountain peaks.
In Death Valley's waste his path I have traced—
And wondered what this strange bug seeks.

Have we failed the test?—Is this stupid pest
An insect State Laws can't control?
Must we live in shame because we're to blame
For this bug devoid of a soul?

Rain Song

By JEAN HOGAN DUDLEY
Culver City, California

The desert earth, sun-drenched each day,
Is drenched again with silver rain.
That dimples dust and softens clay,
—Hangs like a curtain on the plain,
And carves the canyons, brown and red,
And rolls flash-flooding through the sand,
And leaves the smell of wet sage, spread
Like incense on the ragged land.

• • •

DESERT SOLITUDE

By EILEEN A. LEWIS
Twentynine Palms, California

The sage-scented wind has a lonely cry.
The sun has forsaken the desert sky,
And here alone with my thoughts, am I
In Solitude.

Yet in this solitude is pleasure.
In this loneliness I treasure
Time to think!

The Joshua Trees make an eric sight,
As the pale moon ascends to greet the night
And the desert and I enjoy the right
To Solitude.

For in this solitude of beauty
There's release from cares, from duty—
Time to think!

God's star-studded heavens above me lie.
Far off in the distance coyotes cry,
And deep in my heart is a strange reply
To Solitude.

For in this wilderness of splendor
I have found that God doth render
Time to Think!

Comfort

By TANYA SOUTH
God is Love. To us on earth
No greater comfort can be given.
No other message of such worth.
It means, however we have striven,
Or slow, or swifter our advance,
Or lowly, or in prominence,
All, all will be preserved and known,
Misdeeds forgiven, guidance shown
Through inner Light, by Power above,
For God is Love.

CAMP SHOES

By AVINELLE HOGUE
Norwalk, California

I set to work the other day
To clean my closet out,
And dragged forth relics old and new,
And threw my clothes about.

A thousand things I did not need,
Had ever ceased to use,
And down beneath the bottom things
I found a pair of shoes.

Worn out they were with insoles out,
And outsoles worn in two,
With counters down and eyes pulled out,
And tongues that lolled at you.

To part with them a cruel task,
They'd been such loyal friends,
On hunting days and camping trips
A hundred gay week-ends.

But firmly I the shoes picked up,
And firmly set them down,
Then finished up my cleaning work
And turned myself around.

Each thing was in its place I saw,
With nothing to confuse,
And down beneath the bottom things,
Peeped out that pair of shoes.

• • •

THE SPOUSE

By MARILYN FRANCIS
Phoenix, Arizona
1956 A.D.

North and east into the suburbs,
Near to where the car was parked,
Spoke a lady in the market,
Spoke a lady with a cart.

"Please direct me to the charcoal,
We will barbecue the meat,
Other things are in the freezer,
Husbands always want to eat."
1956 A.D.

South and west of the pueblo
In the year of ready rain,
Worked a lady Basket Maker,
Filled her baskets full with grain.

Sang a song of preparation,
"Lay the fire and smooth the floor,
Grind the grain into a sweetness,
Hunter's shadow marks the door."

There was a crashing bolt of thunder and lightning, and then a huge block of stone high up on the wall of Glen Canyon gave way and avalanched to the stream below. It was a tense moment for those in the boat below—but a quick decision and a sturdy motor brought them to safety. This is an eye-witness story of a major avalanche in the great canyon of the Colorado River.

By AL HALL & HUBERT LOWMAN

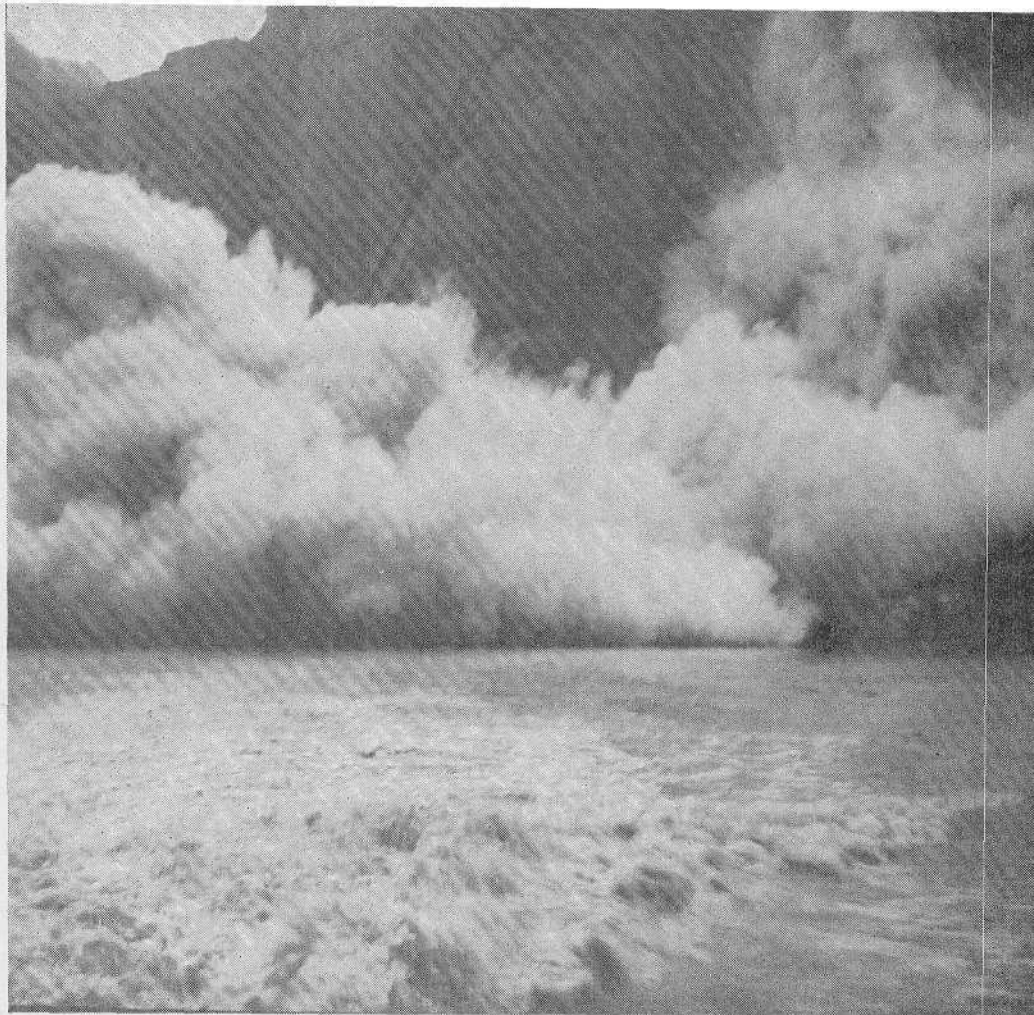
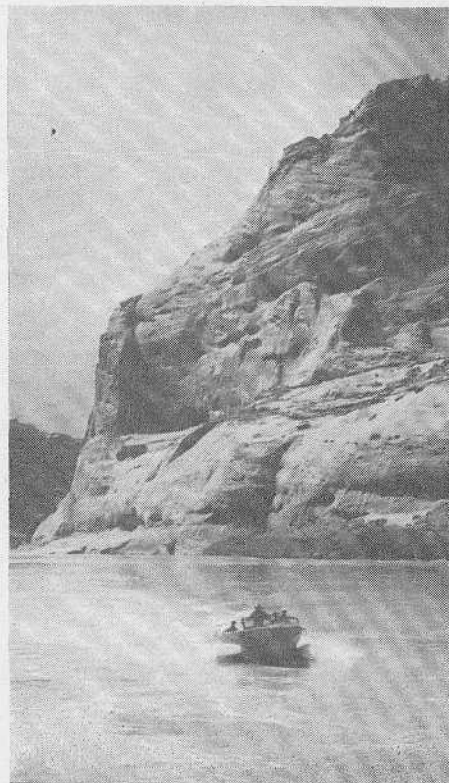
Photographs by the authors

WE WERE in Glen Canyon of the Colorado River, on the way back to Lee's Ferry after a memorable boat trip upstream with Art Greene and his son-in-law, Skipper Earl Johnson. We had hiked to famous Rainbow Natural Bridge. Now we gazed at a clean spot a hundred feet above us on the face of the vertical cliff to our right. A great slab of red sandstone had broken off, lost its balance and lay in a jumble of broken pieces at the water's edge.

"About three years ago we passed here going upstream and the cliff was just the same as always," commented Art. "On the way home we noticed this slab had fallen."

After rounding another bend the sky suddenly turned black and threat-

Art Greene's upriver boat.



Dust from the rock slide in Glen Canyon billows out over the Colorado River. Rockfall origin is out of photograph at top right.

We Saw a Rockfall in Glen Canyon...

ening ahead. Soon the air was soggy with rain. Cameras were wrapped in waterproof-ground cloths. One or two slickers made an appearance as other passengers huddled under more of the ground cloths. Talk was desultory, then nonexistent, as the gliding boat neared the end of the trip and an acute awareness of the grim majesty of the canyon impressed us all.

Suddenly an ear-splitting, jagged lightning bolt of sound shook the canyon ahead. A thousand feet above, almost at the top of the sheer canyon wall, a great mass of rock was breaking away from the cliff.

Frantic thoughts passed through our minds. Would the tumbling boulders deluge our boat? Would a tidal wave sweep across the river and swamp us? Would the avalanche of rock fill the

river channel and bar the way to navigation?

While these questions were racing through our minds, some of us were struggling to get our cameras into action for such pictures as could be taken in the dusk of early evening.

Skipper Earl, at the wheel, swung the boat sharply around, and opened the throttle wide. Calmly, he looked to Art and suggested: "Maybe I had better head for the shore."

Art was studying the cloud of dust that billowed above and behind us. Already it had crossed and filled the canyon.

"You can't breathe that stuff!" Art shouted back, his arm sweeping the entire canyon downstream. "Too thick! Keep upstream until we run out of gas! Stay ahead of it!"

By then the cloud had swelled thickly outward, clogging the canyon 500, 600 feet high! A lost, troubled feeling gripped us as the rumble of tortured rock ceased, and—silently, inexorably—the dust wall was moving toward us, coming upstream before the evening updraft. We were pushing against the sullen current, low on gasoline, but with no other choice.

Minutes passed, the undiminished dust cloud oozing silently and steadily after us.

We were thankful for our escape—so far! Thankful as well for Earl's skill with the boat and instant reaction, for Art's good judgment in keeping upstream—thankful for the boat itself with its power to move against the current rather than allowing us to drift helplessly into that awesome, choking cloud! Surely, sight and breath would be impossible there and the relentless Colorado would move the boat at will.

As the boat growled doggedly upstream, a barely safe distance from the dust, we sensed Earl's worry over the gasoline supply. The dust seemed to be gaining on us! Art was about to

dip towels into the water to wrap around our heads!

Then, vagrant winds began whipping at the top of dust wall. Suddenly the evening sky became lighter. The boat slowed, drifted and again headed homeward. A brackish taste still was in the air, and dust was piled inches deep even on the far side of the canyon wherever there was a shelf level enough to hold it. A great scar lay its length from the talus slope to a gentle new arc in the canyon wall, 1000 feet above the water! Art says the canyon is 1200 feet deep at this point, eight miles above Lee's Ferry.

"In 40 years I've never seen a slide on the river..." Art remarked, staring at the changed face of the rock wall. "We were lucky!" he added.

We were lucky! Lucky to have been in such splendid company, lucky to have shared the beauty of Glen and Forbidden Canyons before they become part of Lake Escalante and are drowned from sight. Lucky to have been to Rainbow Bridge—"The Stone That Goes Over"—before this majestic landmark becomes partially submerged in the new reservoir behind Glen Canyon dam.

Hard Rock Shorty of Death Valley



"Any fish in that lake down there?" the dude asked.

He had just stopped at the Inferno store in a shiny new 1910 model, and his remarks were addressed to Hard Rock Shorty who was half asleep in the shade of the lean-to porch.

Shorty squinted at the stranger and then pulled out his corn cob pipe and began filling it before he answered.

"What lake?" he asked.

"I mean all that water down there between those mountains. Any fish there?"

"That ain't no lake," replied Shorty, "that's jest a mirage like we see around here all the time. Them mirages look like all kinds o' things. Sometimes it's water, sometimes in the early mornin' it looks like a city with skyscrapers. Then sometimes yu see ships an' ore mills—all kinds o' strange doin's.

"Remember one time when we had a couple o' rough lookin' hombres hanging around here fer several days. Pisgah Bill an' me figgered they wuz hidin' out from the law—but we didn't say nothin'.

"Then one mornin' one o' them mirages showed up—a big city it looked like, an' the air wuz so clear we could see the signs on the stores. One big buildin' had its name in big letters standin' on the roof: B-A-N-K.

"After while we saw them strangers whisperin' to each other an' then they pulled out sudden like.

"Two months later ol' Bad-water Bill come in from a prospectin' trip and said he found a couple dead dudes 'way down there in the dunes with their car buried to the axles in the sand.

"We went down to give 'em a decent burial—and sure enough it wuz them same fellers that'd been hangin' around the store two months before. An' in their old car wuz their tools—a complete outfit fer crackin' safes."

Rivermen Seek to Keep Glen Canyon Open for Boating

Engineers of the U. S. Bureau of Reclamation have closed the Colorado River at the Glen Canyon damsite to all public navigation. The closing order became effective in October at the end of the summer boating season in Glen Canyon.

The closing of Glen Canyon at the damsite eight miles up river from Lee's Ferry threatens to put an end to two of the most popular boat trips on the Colorado: The Glen Canyon run from Hite Ferry to Lee's Ferry, and the San Juan river trip from Mexican Hat to the junction of the San Juan with the Colorado and thence through lower Glen Canyon to Lee's Ferry.

Boatman-guides who have been taking several hundred passengers on these runs each summer in the past, have asked the Reclamation Bureau to improve an exit route which will enable them to bring their boats downstream as far as the damsite, and then take the passengers and boats out by highway. Such a road exists along Wahweap Creek on the Utah side of the river. However, Construction Engineer L. F. Wylie of the Reclamation Bureau has stated this road is to be used exclusively by contractors on the

dam project and will not be available for private transportation.

Wylie, discussing the matter with a member of the *Desert Magazine* staff late in November, said an effort had been made to open an exit road up Warm Springs Creek, another Utah tributary, but that the bulldozer crew had run into treacherous quicksand, and he did not believe such a road is feasible.

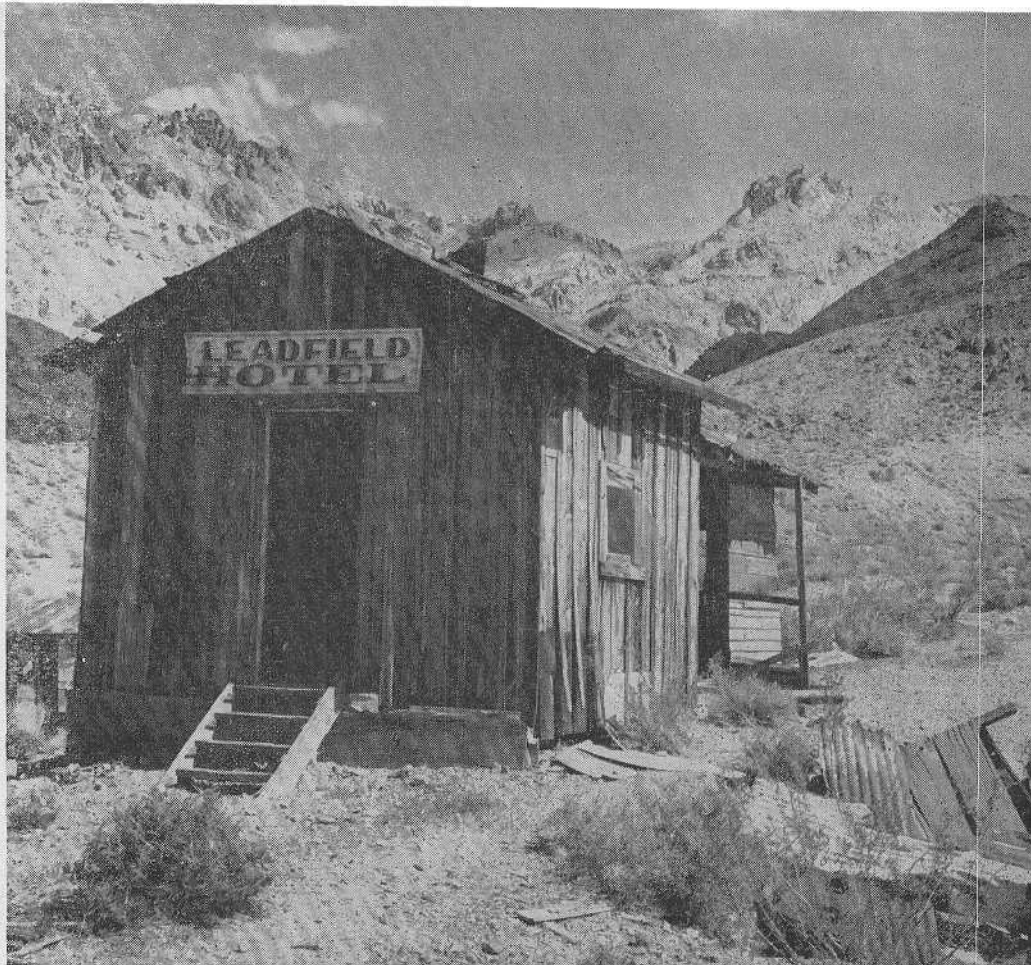
According to J. Frank Wright, pilot-leader of the Mexican Hat Expeditions, 1048 people registered at Rainbow Bridge during the year ending last August 8, and most of these reached the Bridge by the river route. Wright and other boatmen are hoping the Reclamation Bureau will provide some route for exit from the river, as the most scenic sector of Glen Canyon is upstream only a few miles from the damsite where Forbidden Canyon, Rainbow Bridge, Music Hall, Mystery Canyon, Hidden Passage and Twilight Canyon are located. Although it will be several years before the rising waters behind the new dam submerge these beauty spots, they already are closed to the public unless some means can be found for an exit for passengers who come downstream from Hite ferry or Mexican Hat to view them.

Boom and Bust at Leadfield

Leadfield never had a chance. True, it has a large body of low-grade ore. But it was the salesmanship of a fraudulent promoter—rather than the ore—which induced several hundred luckless investors to put money into the prospect hole. Here is the story of a mining fiasco which eventually led to the suicide of the man who promoted it.

By RUSS LEADABRAND

Map by Norton Allen



A few years ago this building, bearing the Leadfield Hotel sign, was still standing. Plans for the town's original hotel called for 40 rooms, but the structure that was finally built probably contained no more than four.

Photo by Floyd B. Evans

ON SUNDAY, March 21, 1926, a strange procession of 94 horn-tooting automobiles beat their way across the dusty Amargosa Desert flatlands from Beatty, Nevada, toward the bleak Grapevine Mountains 15 miles to the west.

From the foot of the mile-high range the procession zig-zagged up a fresh scar etched in the side of Red Hill to a narrow, windy summit on the crimson bluff.

Then the caravan hurried down the brand new road into the middle of the range and the squealing of brakes was drowned out by the shouts of the passengers and the saluting blasts of dynamite from the nearby canyons.

At the bottom of the grade, where welcome banners flapped in the desert sun, blossomed the newest of Death Valley's mining communities: Leadfield.

On hand to welcome the 340 guests—including 24 women—who had ridden a special Tonopah and Tidewater train from Los Angeles to Death Valley, was Leadfield's gallant host and founder, C. C. Julian.

Those 340 people had been carefully culled from 1500 who wanted to make the junket. For they were the most likely to invest in one of Death Valley's greatest mining speculations, Western Lead.

That Sunday, according to the sec-

ond issue of the *Leadfield Chronicle*, the boom camp deep in a pocket of the Grapevine Mountains entertained over a thousand city dwellers and desert folks who were on hand to celebrate the founding of this new mining community.

Other less conservative sources placed the visitor total at 3000. But Oscar Olsen, former steward at the Goldfield Elks Club, admitted later that he had fed a buffet luncheon of chicken, pork and salad to 1120 persons that afternoon.

To add to the general color and confusion of the occasion was a six-piece band that Julian had hired in Los Angeles to provide "jazzy music."

Julian, developer of the Julian Petroleum Co., an oil concern that was currently under fire by stockholders and corporation commission investigators in Los Angeles, was persuaded to say a few words after the banquet.

"I didn't bring you here to buy Western Lead," Julian told the jovial throng.

Laughter rippled through the crowd.

Julian pressed the point. "If you don't buy, it will be all right with me.

No fooling. This baby stands on her own feet."

Evidently Ole's chicken, pork and salad and the jazzy music had more effect on the visitors than did Julian's negative sales talk for Bourke Lee, Death Valley chronicler, reports that "several million dollars worth of stock was sold."

But there was too much stock manipulation and too little development of the 100-foot thick layer of seven percent lead ore that lays under Leadfield.

Julian's baby—Death Valley's last boom town—stood on her own feet only until the end of that year.

On August 25, 1926, Virginia Thomas Costello, first and only postmaster, opened the Leadfield postoffice with mail for 200. She closed the postoffice the day Leadfield died—five months later on January 15, 1927.

The low grade lead claims that John Salsberry sold to Julian were never exploited. Julian once told stockholders that he had \$55,000 worth of mining machinery ordered for the camp. But Julian's earlier troubles hounded him even to Death Valley, and he fled

to China where he later committed suicide.

Today little more than junk and rubble marks the site of Death Valley's last mining boom.

When Julian first started developing the Salsberry lead claims, supplies had to be trucked in from Beatty. This was a staggering logistics problem in a country where even water had to be transported.

The route lay west from Beatty across the Amargosa Desert to the Grapevines, over Daylight Pass into Death Valley, then north to the slot in the rock that was the mouth of Titus Canyon, and up that steep and tortuous cleft to Leadfield.

It was an agonizing 70 mile haul to accomplish a straight line trek of 20 miles. Julian hired E. S. Giles of Goldfield to survey a closer route over the eastern wall of the Grapevines. The result was the spectacular Red Hill grade. The road cost \$100,000 to build and is still in use.

During its heyday, according to historian C. B. Glasscock, Leadfield supported a newspaper, the Leadfield Hotel, Ole's Inn and a half dozen other shops. There were bunkhouses, a blacksmith shop, mess hall and a scattering of private residences.

When the town died, wind, weather and lumber-hungry prospectors picked it to pieces in short order.

Still standing are a sheet-metal smithy, a bunkhouse and a few dug-outs.

Here and there in the rubble can be found old assay crucibles in which samples of the lead ore were tested against the day when vast shipments of the mineral would rumble down Titus Canyon.

Eastern speculators later related that they had become interested in Western Lead after reading brochures that advertised the grand scheme in the desert. Those brochures were illustrated with sketches of ore trucks being met at the mouth of Titus Canyon by ocean-going paddleboats!

Today the rubble-strewn hollow where Leadfield once stood is only visited by the most curious tourist. The Titus Canyon road, greatly improved by the CCC crews in the 1930s, is considered safe for any experienced mountain driver in a passenger car. This road is one way now—down. The entrance to the road is reached at a point west of Beatty, Nevada, on the Beatty-to-Daylight Pass highway. The junction is well marked.

After a long drive across the alluvial slope of the Amargosa Desert the road swings steeply up the Grapevine Mountains, past colorful knobs and minarets similar to those found in southern Utah.

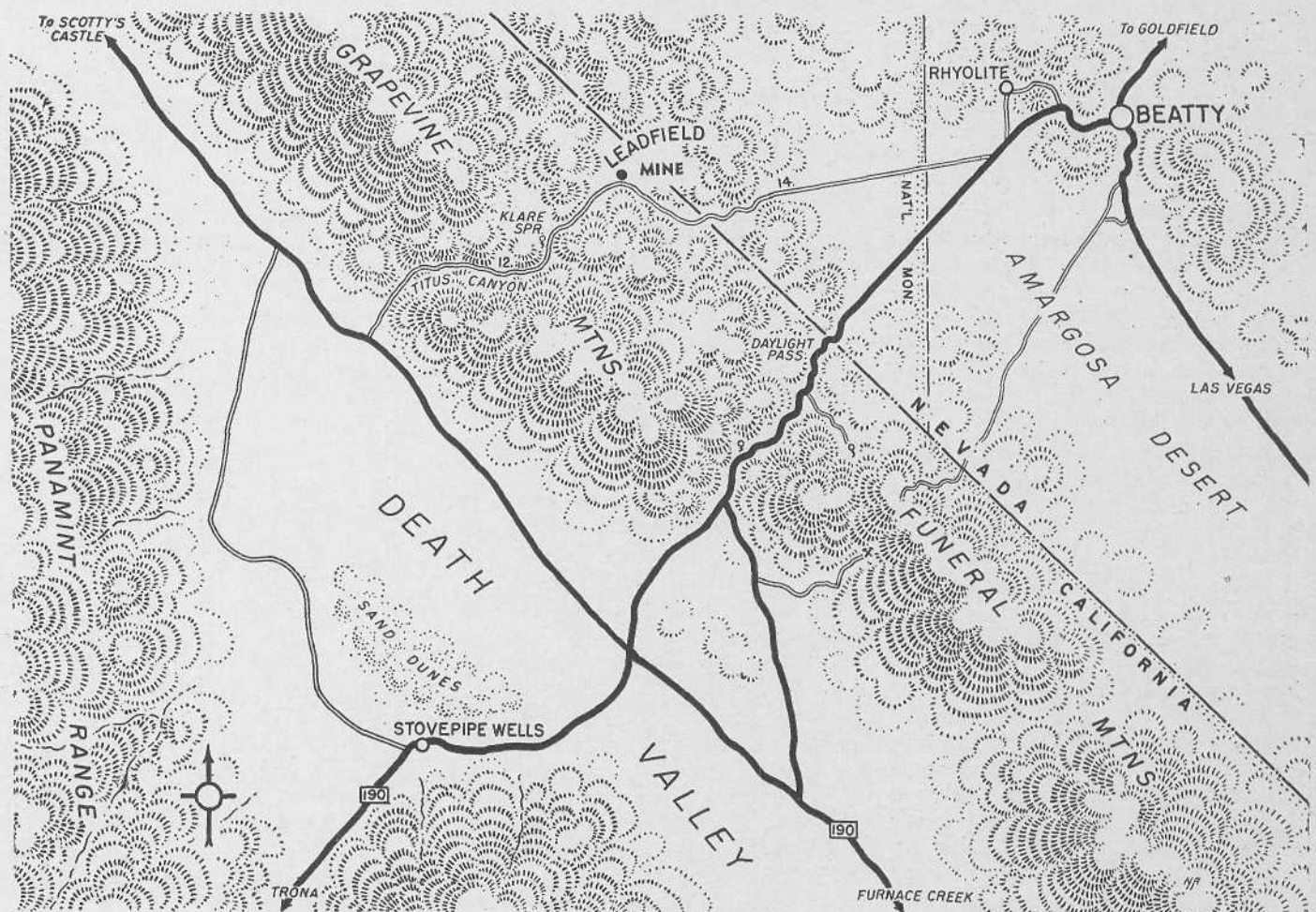
From the top of this pass the graded road, constantly maintained by the U.S. Park Service, drops down into the headwaters of Titus Canyon, past Leadfield and Klare Spring—a miniature oasis in an otherwise dry canyon—toward the narrow slot below.

It was at Klare Spring, when Leadfield was still in bloom, that some small-scale promoter erected a 50-gallon drum atop a scaffolding and hung up a sign: "Shower baths, 25c each." Water at Leadfield was scarce and the promoter made money.

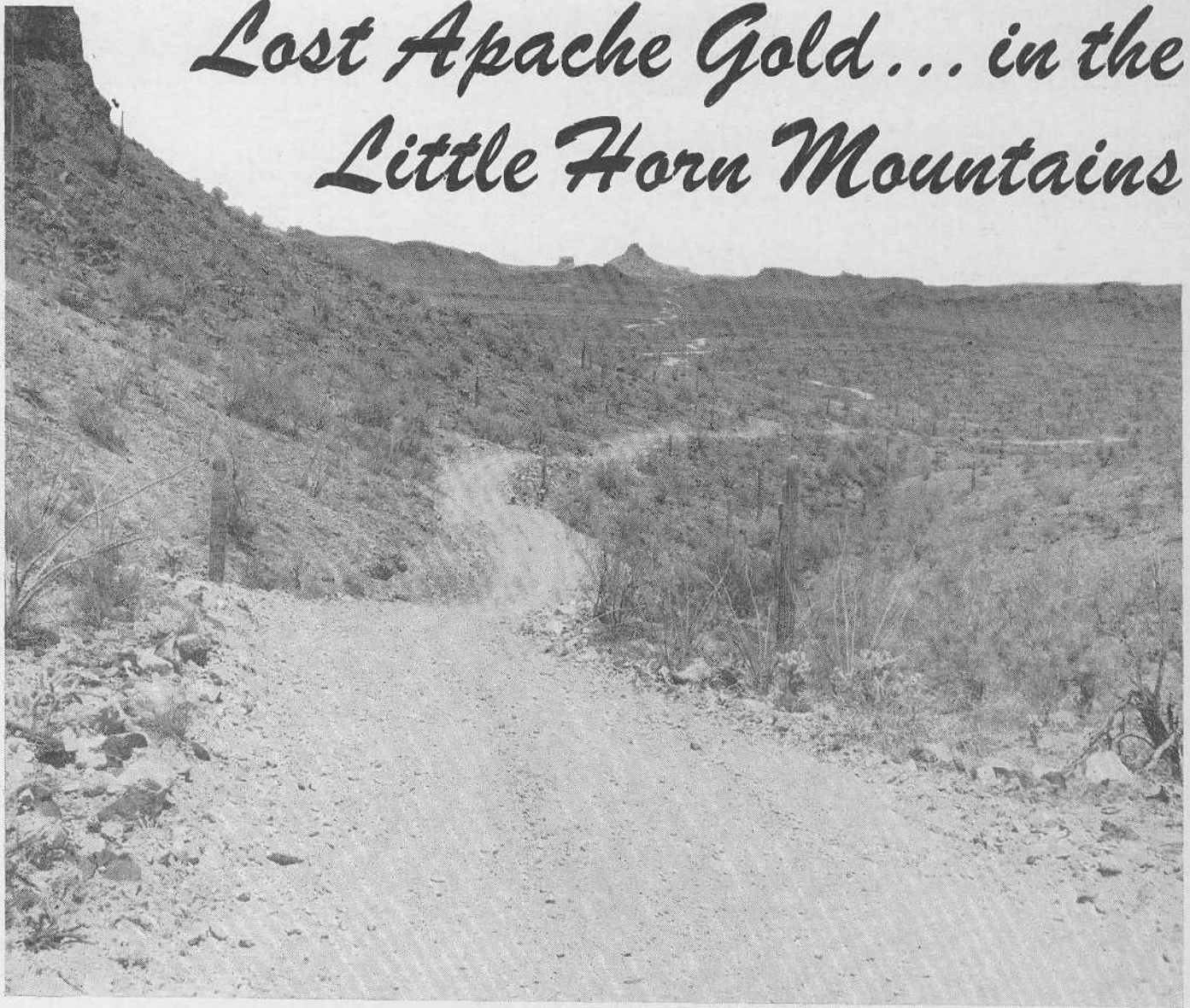
The lower reaches of Titus Canyon, miles of narrow, twisting, sheer-sided driving, is an experience never forgotten. Daubs of silt 30 feet up against the glassy sides of the canyon were left there by the last cloudburst that roared down the chasm.

The road opens onto a high alluvial fan overlooking the awesome Death Valley sink.

A bustling community 30 years ago, C. C. Julian's Leadfield will probably be little more than a memory by the time another 30 years have passed.



Lost Apache Gold... in the Little Horn Mountains



A new road, built to haul manganese ore from the Little Horn Mountains to Salome, runs within a mile of the area where Pancho's gold is supposed to be located. Here the road descends from the Little Horns.

Here is a lost mine tale that "has not passed through so many mouths as to have become distorted." It concerns a Tonto Apache Indian and his debt of gratitude to a rancher who he led almost to "the richest mine in the world."

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

MORE THAN half the width of Arizona separates San Carlos Indian Reservation and Palomas on the lower Gila River. Yet early this century an aging Tonto Apache warrior named Pancho, walked these long miles to visit an old friend and repay a kindness. At Palomas he found his friend, Jose Alvarado, Sr., ailing and in pain.

"Compadre, this is no good!" the Tonto Apache protested. "Here I have

come to take you to the richest mine in the world . . ."

Alvarado smiled wryly. "And I cannot even walk without pain." Looking at the bronzed face of his friend, he recalled their first meeting many years ago.

Jose Alvarado, son of Juan Bautista Alvarado, a governor of California in Mexican days, was born in Monterey and came to the Gila Valley in 1878 to homestead and run cattle. At that

time, the grim and vivid chapter the Tonto Apaches were writing into the history of Arizona Indian warfare was nearing its end. In 1873, General George Crook had forced surrender of most of the Tontos, placing them on a reservation at Camp Verde. There, with crude tools, the Indians planted wheat and corn on the land they were told would be their permanent home.

But a year later, through machinations of government contractors who wished to keep the Indians from becoming self-supporting, they were removed from Camp Verde to hot, dusty and malarial bottomlands at San Carlos, despite protests by General Crook. Fifteen hundred Tontos started this trek, but fewer than 1400 arrived. The rest sifted away to join little bands clinging to their old way of life in the

Tonto Basin and the rugged desert mountains.

There were more raids, campaigns and skirmishes in the years that followed—in the Castle Domes, Santa Marias and other hideouts—and more Tontos were captured and taken to San Carlos. On one of these roundups, the soldiers brought a large group of captives up the Gila and camped for a while at Jose Alvarado's ranch.

"This is when my father got to know these people," Jose Alvarado, Jr., told me. "There were 500 Indians camped there on the mesa, I guess. I do not know why they called them Tontos—they were gentler than the others. They weren't bad Indians if you treated them right. If you didn't—there was trouble!

My father had no quarrel with them. He had many cattle and almost always there was an old cow or bull that he would kill for them to eat. They camped around our ranch often, and were friendly."

Pancho was one of these Tonto Apaches. Later he drifted off the reservation and, during the winters, camped with his family at Alvarado's. Once while there his small son became very ill.

"He was about to die," Jose Alvarado, Jr., recalls. "About that time one of the priests who used to journey up the Gila came along. My father was worried about the little Indian.

"Let me take him to the priest to be baptized," he said to Pancho. 'He

is dying now. Perhaps he might live.' So Pancho let my father take the little papoose, and the priest baptized him. Ay, golly! That little Indian got well! From then Pancho thought much of my father."

In the great flood of 1891, the Gila overran all its valley, hundreds of cattle drowned and adobe homes melted away. The Alvarados lost their ranch and moved to Yuma. But many of his cattle survived, and Jose Alvarado returned. At that time, due largely to the opening of the Harquahala Mine 50 miles to the north, the freighting center, Palomas, commenced to grow up among the great mesquites on the Gila flood plain around J. F. Nottbusch's general store.

Alvarado built a frame and adobe home, with log lean-to kitchen, within a hundred yards of the store. He was living there, in his late seventies, when Pancho came. The Indian had thought about the matter a great deal and would not easily abandon his purpose.

"You don't have to walk," he said. "We can ride right to it. Maybe you can ride?"

"Maybe," Alvarado agreed. "For the richest mine in the world, I can try. But I must take someone. Myself I can do nothing."

"You have friends," Pancho said. "Bring them along."

They started northward the next day. Pancho, who had refused a horse which he considered a nuisance, was walking in the lead. Behind him rode Alvarado. Two Mexican acquaintances brought up the rear, walking behind loaded pack burros. Apparently the party kept west of Palomas and White Tank mountains, following the old Yuma road then branching north from it along the King of Arizona-North Star (Kofa-Polaris) freighting route. This they left to head northeast past Engesser Camp and through Engesser Pass in the Kofas.

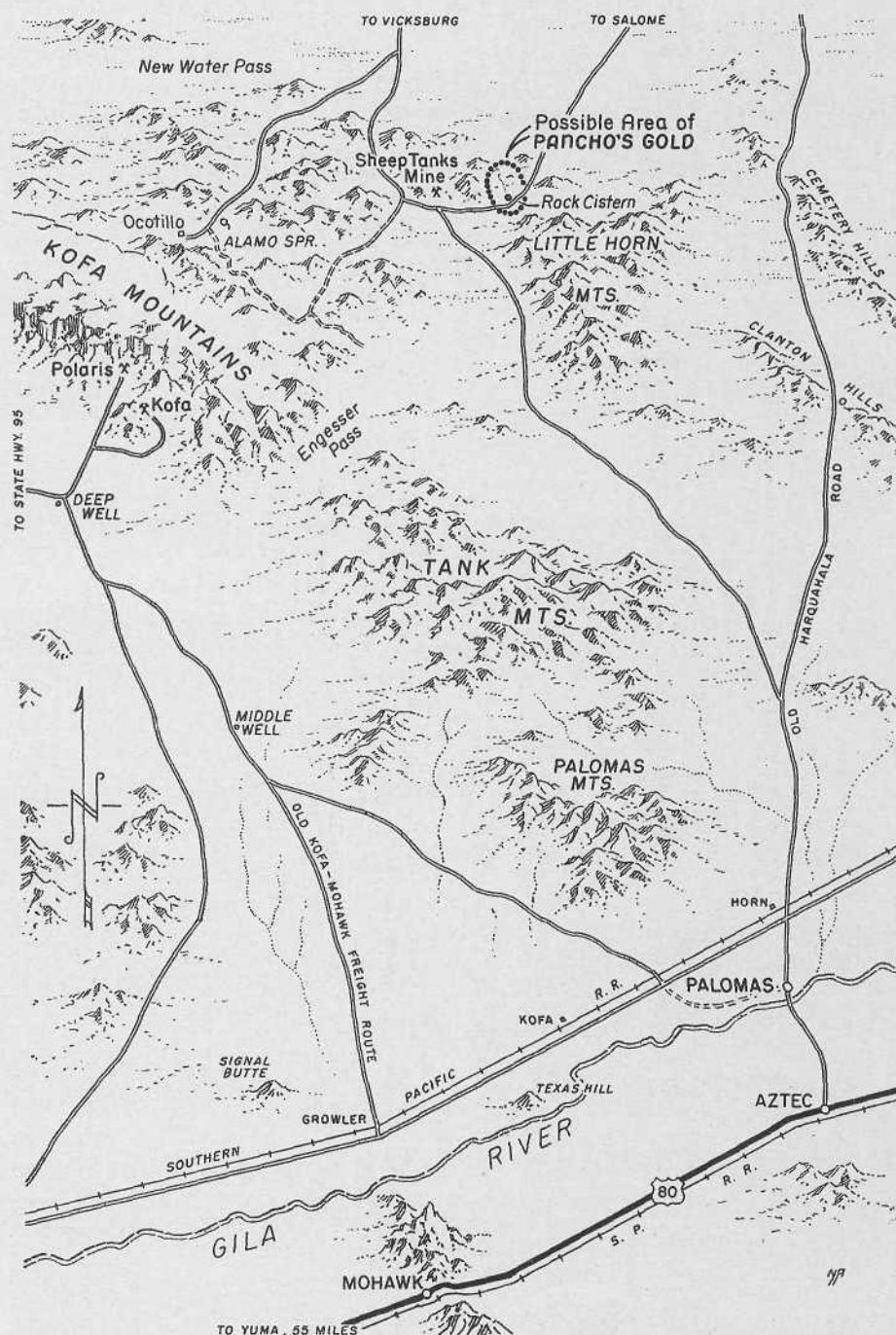
The first night out Alvarado's Mexican acquaintances objected to preparing food for the Indian, and even more to eating with him.

"Pancho is going to eat when I eat!" Alvarado insisted.

But each time the party halted for a meal, the argument was renewed. Pancho decided that these two should not learn his long-kept secret, and steered a roundabout course to Alamo Spring in the northeastern outliers of the Kofas. There they camped and in the morning, when the Mexicans protested again, Pancho took Alvarado aside.

"If they do not quit this I am going to kill them," he said.

Alvarado knew that the Indian



meant it. "We are going back to Palomas," he told the others. "And unless you are careful, my compadre will kill one of you."

It was a sullen and subdued party that repacked the equipment and set out on the back trail to Engesser. Alvarado carried a rifle on his saddle, and when they had gone a little way Pancho dropped back beside him.

"Compadre," he said, "let me have your rifle. I want to see if I can find any wild sheep. And you go on way out there to the east. You will find a big wash — an old river bed. Below the trail, where it crosses this wash — about 50 yards down — you will find a hole in the rock. The soldiers made it to catch water when the wash runs. When they were taking us out of here, they stopped at the hole for water. Wait there for me."

Alvarado hesitated a moment, then gave the Indian the rifle. Traveling slowly, at the speed of the pack burros, they came to the crossing of a rock-bottomed wash in a low, broad drainage valley about two in the afternoon. Just below the crossing Alvarado found the cistern cut into the washbed.

"We will unpack the burros and have lunch," he said, "and here wait for Pancho."

Unpacking was not complete when Alvarado, who was still in the saddle, looked up the wash and saw Pancho. The Indian walked up to him and threw a large rock on the ground.

"Break that open," he said.

The rock had a rusty reddish-black surface. Alvarado took a prospecting pick from his saddlebag, slid to the ground, and broke the rock. Jose Alvarado, Jr., saw part of that rock later.

"Man!" he told me, "that rock was really yellow! You could hardly see anything else inside that rock but gold!"

Holding the rock, old Alvarado shouted to his companions: "See what Pancho has brought me!"

The two looked at the golden rock. They looked at Pancho. They looked at one another.

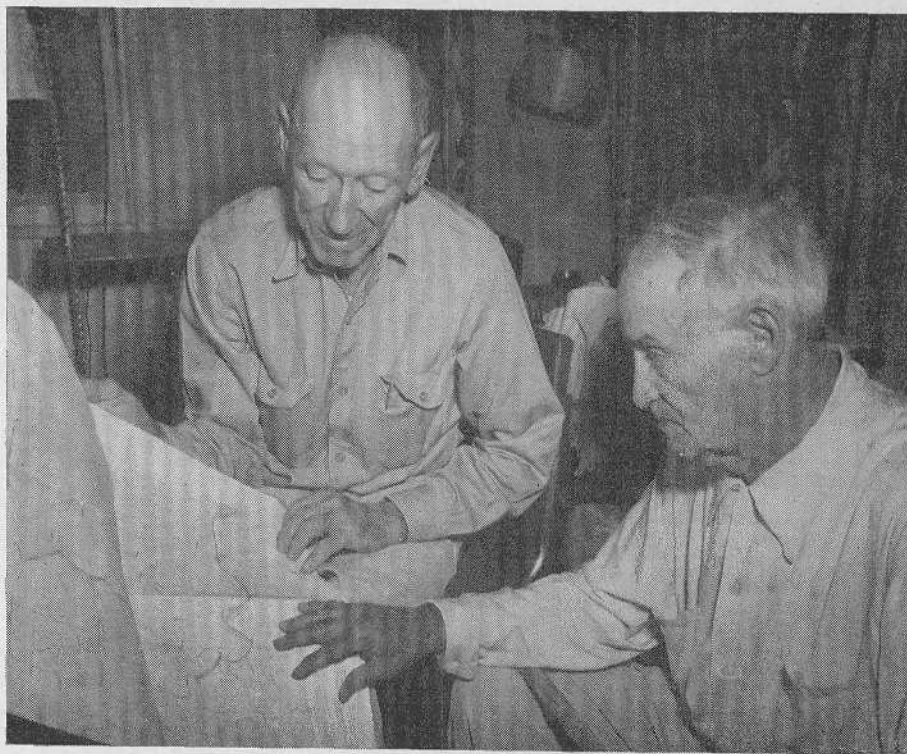
"Pancho hasn't eaten!" one said.

"Let's cook him a good meal!" said the other.

They cooked the best they had and Pancho ate, but rebuffed their over-eager advances.

Camp was made for the night in a flat beside the wash. About two in the morning, as Alvarado judged by the stars, he was awakened by Pancho. The Indian motioned for silence and led him beyond hearing of his sleeping companions.

"Compadre," he said, "go right up this wash a mile and a half to a little side wash. You see lots of this rock



Before the start of the lost mine hunt, Ed Rochester, left, and Jose Alvarado study maps of western Arizona in an attempt to pinpoint Pancho's lost gold.

down there. That's the richest mine in the world. But don't tell those other two. Don't tell them! Take them out to the river. Then you come back alone. You will find it."

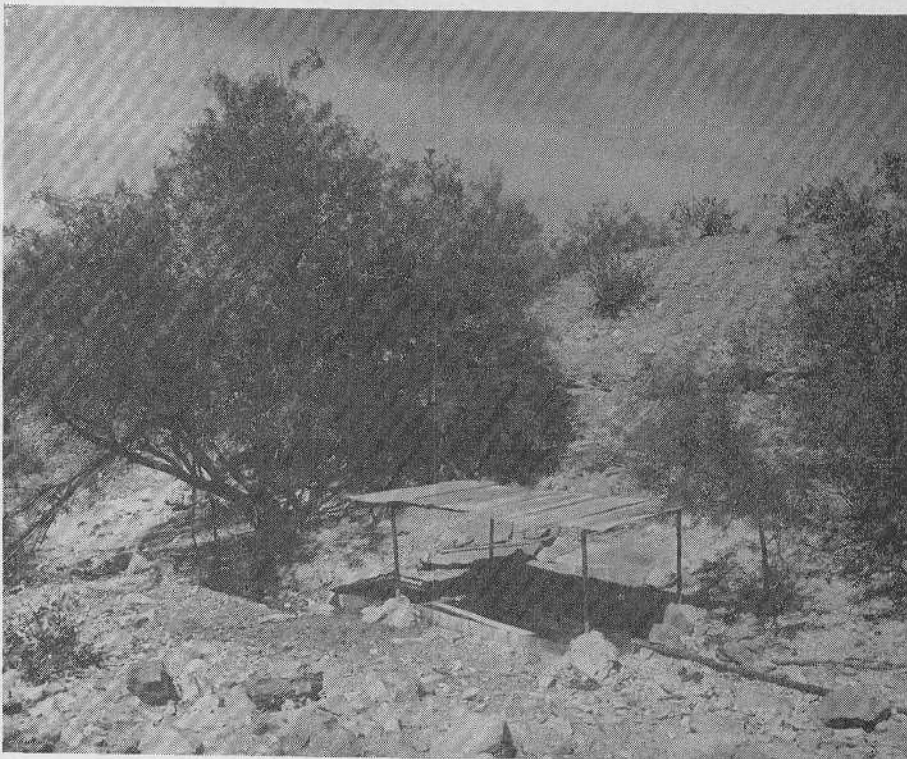
They returned to their blankets and finally Alvarado slept again. He was wakened by his companions.

"Where is Pancho?" they asked. "We've fixed a fine breakfast for him."

"I think Pancho is gone," Alvarado told them. He never saw the Tonto Apache again. Pancho had paid his debt and had gone his way.

Alvarado did not profit by that payment. He was never able to return to

Present Alamo Spring in the northeastern Kofas. Near this point old Alvarado, the Tonto Apache and the two Mexicans camped. Next day they reached the area of the rich gold ledge.



look for Pancho's gold. In 1918, the old man was brought to a daughter's home in Yuma, desperately ill. That was only a week after his return from the trip with Pancho, according to his son, but there are indications that the actual trip may have been made some time earlier.

Knowing he had little chance to recover, Alvarado sent for his son and related the whole story. "Son," he said, when he had finished, "be sure to go up there! Be sure to follow Pancho's directions! I know you will find the gold."

Within a month, the old man was dead.

In 1918 Jose Alvarado, Jr., was operating a dairy and making good money. He was not going to abandon prosperity to chase a golden ledge he might not find. When he finally went to the Alamo Spring area, the old trails were long unused. He could not tell where his father and Pancho had camped nor locate the key landmark, the cistern carved in the rock.

"There are so many washes in that country!" he explained.

The possibility of relocating Pancho's gold fascinated me. It was located in a geographical area that could be pinned down and was limited in extent. It was in a country where gold had been proven to exist. It was near an old trail both Indians and pack trains

had followed. It had a permanent landmark—the rock cistern. And the story had not passed through so many mouths as to have become distorted.

Early in the summer of 1955 Lucile, Ed Rochester and I set out for the northeastern Kofa country—too late and hot for serious prospecting at the lower elevations. Our plan was simple: From Alamo Spring we would try to find a trail leading to Engesser Pass which crossed an arroyo in which there was a rock cistern.

Finding Alamo Spring seemed easy. Almost every detailed Arizona map shows it. But different maps show it in different positions in respect to the road—if a road was shown. We finally chose the official map of Yuma County—which proved incorrect in detail, compass directions and topography. How wrong we realized while working through buttes and canyons where the map showed open plain.

But with directions given us by our old-time friends Bill Keiser and Bert Hart of Quartzsite, and amplified by the Livingstons who have a ranch in New Water Pass, we found on a flat above a deep wash a camping ground with indications of use going back through purple glass fragments to arrow chippings. In a side branch of the wash below we located the spring, developed by the Fish and Wildlife Service which had piped the water to

a metal trough shaded by corrugated iron. This seemed to fit the locality of Alamo Spring, though one old-timer told us later that this was Upper Alamo Spring and that the old one, lower in the main wash, no longer flowed. There were no cottonwoods, living or stumps, to identify either.

From the spring the only road in the direction of Engesser Pass climbed through a saddle and dropped down to Red Raven Wash. A rutted track to start, it deteriorated rapidly from that point. The remainder of the afternoon brought a maze of buttes, canyons, ridges and arroyos. Parts of the trail vanished completely and we could only bump cautiously along—often in four-wheel drive—until we picked it up again. We reached Hoodoo Well and, beyond, the trail that led to Engesser Pass, just before sundown. We had searched diligently at each likely wash crossing, but had found no trace of the rock cistern. Our gas supply was down because of the unexpected amount of low and compound gear work and the only reasonable course seemed to go out to Highway 60-70 for more gas, then make another try from Alamo Spring.

We camped that night at the southwestern edge of the Little Horn Mountains, tired and more than a little discouraged. Starting early, we discovered the home of the Ray Hovetter family less than a mile from our campsite. Hovetter was working a dozen manganese claims in the mountains to the east. We soon learned that we could not have found anyone in Arizona better able to give the information we needed. His father was one of the first cattlemen at Wellton and Ray had ranged through all this country for more than 40 years.

With a twig he sketched on the brown earth all the roads and trails of this country. And when I told him the story of Pancho's gold he was silent for a moment, rubbing his chin.

"It's an odd thing," he said at last, "but I know just such a hole in a wash as you describe. It's the only one I know in this country—and it's old. It looked old when I first saw it 40 years ago. But it's in the Little Horns about five miles east of here. Why would they have swung way out there, going from Alamo Spring to Engesser Pass?"

After a moment's silence he continued: "I do remember seeing Alvarado—the father—in that country where that hole in the wash is. I would say, though, it was nearer 1910 than 1918." He paused again. "Come to think of it, that hole in the wash is right beside the old Indian and pack train trail from Alamo Spring. It

Calling Desert Photographers . . .

If you travel the desert afoot and hunt its mysterious beauty with a camera you know well the boundless pleasure and photographic possibilities this land offers—especially during this season when the days are crisp and alive with the pulse of a new winter. If you are a novice at hiking and camera hunting we sincerely urge you to try them out. And professional photographer or amateur—we invite you to share the best of your desert photographs with other members of the Desert family in the Picture-of-the-Month contest. Each month two cash prizes are given to winners.

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

HERE ARE THE RULES

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

Address All Entries to Photo Editor

The Desert Magazine

PALM DESERT, CALIFORNIA

joined the Harquahala freighting road, and they could have branched back from that to Engesser. And—another point for your story—Bill and J. V. Allison found rich gold ore in a butte at the side of that wash only a few hundred yards from the water hole. Reddish ore with the gold just sticking out. They ran a shaft and a few trenches, but there wasn't much of it. That was in the 1920s, I think."

Ray Hovetter directed us to the rock cistern. Following the road he had made for hauling manganese to Salome to a point four miles east of the Sheep Tanks Mine, we entered a broad valley with two little cabins on a hill at the eastern edge. At the base of the hill we cut back northwest into the wash on an old, little-used road. This road would bring us to the cistern in the wash, about a mile after leaving the new road. We were to be careful, he warned us, to see that the cover was on the cistern when we left. Mining men in the area had cleaned it out and were using the water.

Although the cistern lay less than 10 feet south of the wash crossing, we could have looked right at it without recognizing it, had we not had explicit directions for finding it. The bottom of the wash at the crossing was made up of fine conglomerate cemented by a material as white as caliche. The cistern had been cut down into it to a depth of 18 feet and was three feet square. A foot or two down, it had been framed in with wood and covered with a homemade screen—galvanized iron with punched holes—mounted on a wooden frame. Half a dozen good-sized rhyolite boulders had been piled on top of the screen.

It was an ingenious device for catching water in an arid land. Whenever the wash ran, water would flow into the cistern. The screen would keep out debris; the rocks protect the screen from damage. The cover would almost eliminate loss by evaporation.

There could be no doubt that this was the hole in the wash by which Alvarado and Pancho had camped. In finding it we had relearned a lesson lost mine hunters must learn over and over. No matter how definite directions in a waybill may seem, they have meaning only when considered in relation to the then existing roads and trails and to the route which the original party, no matter what its reason, chose to follow. We had looked for the cistern close to the most direct route between Alamo Spring and Engesser Pass. But the party we were trying to trace had made a wide U in their journey, and the cistern was many miles east of where we expected to find it.

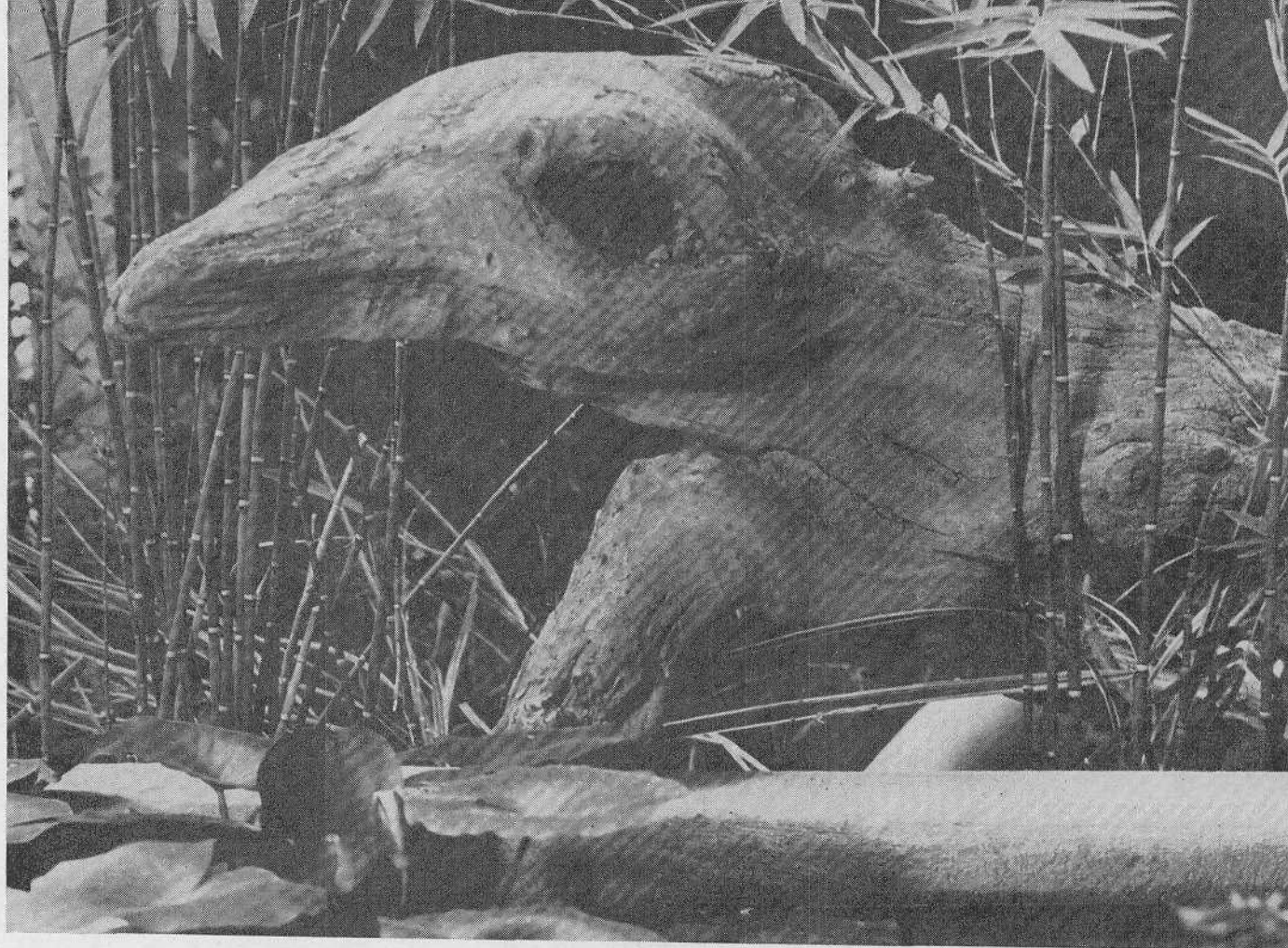
Yet another interpretation of direc-



The old cistern in the Little Horn Mountains, foreground, beside which the party camped. It was here that the Indian brought in his fabulous golden rock. At left center of hill in background is the tunnel cut in the 1920s by prospectors who found small quantities of rich gold ore on this slope.

tions must be made before Pancho's gold is found again. From the cistern, the directions seemed explicit. About a mile and a half up that same wash was a side wash. In the side wash we would find the golden rocks—but we did not find them. While it was too hot for painstaking prospecting, and we did not have time to cover the whole valley, we did examine the most likely washes and if the gold was as prominent as Pancho indicated, we should have seen some of it.

But we are not through looking. The directions and the country fit too well together for this story to have been all imagination. Somewhere in those washes in the Little Horn Mountains must lie the gold that the Tonto Apache thought was "the richest mine in the world." And looking northward from that strange man-made water tank in that lonely land, we remember old Jose Alvarado's words to his son: "Be sure to follow Pancho's directions! I know you will find the gold."



Driftwood Demon...

This shattered tree trunk was found on the Mojave Desert—fashioned by Nature into this striking resemblance of a prehistoric monster. Valrie M. Geier of Northridge, California, is the prize winning photographer of this "Driftwood Demon."



Pictures of the Month

Border Patrol ...

Arthur C. West of Chula Vista, California, is second prize winner with this photograph of two Border Patrolmen examining footprints west of Port of Entry, Calexico. West used a Speed Graphic Camera, f. 22 at 1/100 second, Royal Pan film, medium yellow filter.

When Birds Come for Water . . .

By EDMUND C. JAEGER, D.Sc.
Curator of Plants
Riverside Municipal Museum
Drawings by Morris VanDame

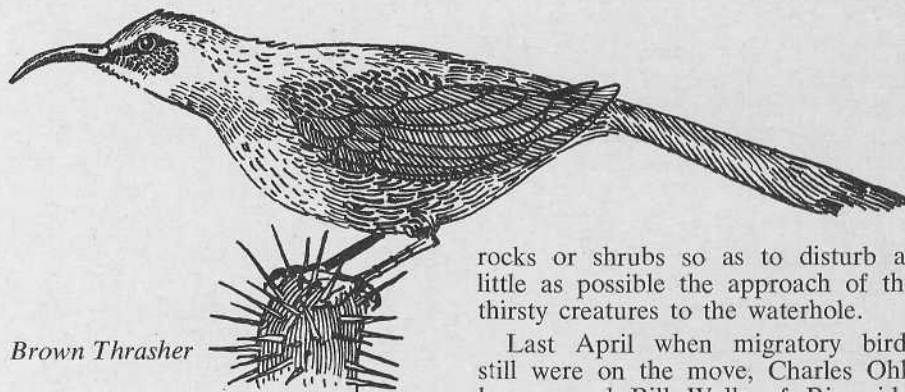
THROUGH MY many years as a teaching biologist I have conducted numerous field trips. One of my favorites, perhaps because it is always so successful in stimulating and inspiring my students to a lasting interest in the outdoors, is a very short one as far as distance is concerned.

In a walk of only a few hundred yards I attempt to show how many really pleasing and important observations can be made. Sometimes it is a ramble up a narrow plant-bordered wash or a walk around a desert waterhole or flower-covered dune.

Invariably there is enough interest-compelling material — plants, birds, insects, spiders, fungi and lichens — to engage the rapt attention of my listeners for a half hour or more. It gives me a good opportunity indeed to demonstrate what a host of unsuspected wonders lie at our feet.

Another eye-opening and rewarding field trip involving even less travel, although generally much more time, is what we call our Fabre Hour Excursion. It is named in memory of the

Here is a revealing story of wildlife—of the habits of the birds which come to a desert watering place, as seen through the eyes of a Naturalist.



Brown Thrasher

French savant, Jean Henri Fabre (pronounced FA-burr), who, unable to travel far from home, found the subject matter for many fascinating books in the observations of insects he made in his own back yard. Such a Fabre Hour Excursion generally means going to some lonely desert spring where we can watch the behavior of diurnal birds and mammals as they come in from a wide surrounding area to quench their thirsts and to rest. Not more than four persons can successfully watch at such an observation post. Generally we take our places behind a screen of

rocks or shrubs so as to disturb as little as possible the approach of the thirsty creatures to the waterhole.

Last April when migratory birds still were on the move, Charles Ohlhausen and Bill Wells of Riverside, California, and I stopped for an afternoon's rest at Gray Rock Spring on our way back from a 10-day Sonoran journey. This small, practically unknown oasis is on the desert slope of the San Jacinto Mountains of California, an arid area where singleleaf nut pines, shrubby junipers, catsclaw and desert willows are fairly common. The day was warm and the air very dry.

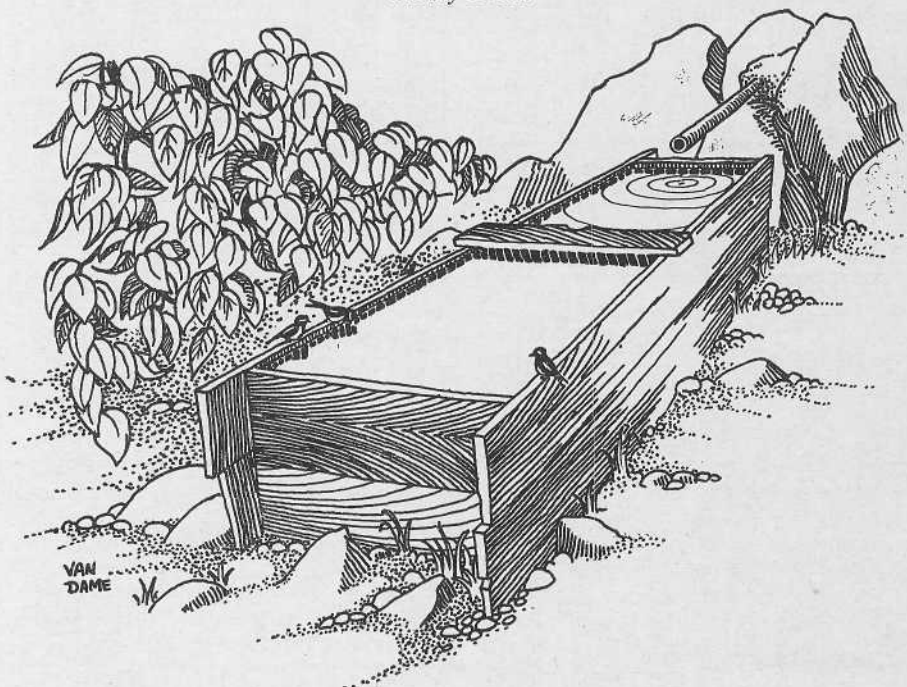
"A perfect day for thirsty birds," said Bill. "They are bound to come in, and often."

We made ourselves comfortable about 12 feet from the wooden trough of water. Into it flowed a trickle of water from a rusty alkali-encrusted two-inch pipe. Several tall bushes including a juniper, sumac and catsclaw, all flourishing in the moist soil, bordered the trough on two sides. From where we sat we had an unobstructed view of the container.

Short was our wait before a handsome California Jay raucously announced his incoming. Unhesitating and brave, he stopped but a moment in the large-leaved sumac bush to the east of the spring then descended to the edge of the trough, natively cocked his head to one side and took his drink. Just as he was finishing he spied a fat brown-haired inch-long caterpillar humping its way along the top of the pipe; a dash on the wing and he gobbled it up. Then in a very business-like manner he flew up over the brush-covered hillside and with blue wings and tail widely spread, made a graceful landing in a juniper bush.

Hardly had he departed when steady ingress of the more timid smaller birds took place. They evidently had hesi-

The old water trough at Gray Rock Spring is a popular rendezvous for thirsty birds.



tated to approach the water while this flat-headed villain was about.

First to come in were two mild-mannered Bluebirds, showing the soft tones of blue and brown of their feathered coats. The Jay had done all his drinking from the edge of the trough, but these Bluebirds, as well as several other feathered visitors that came in that warm afternoon, drank only from the end of the pipe, tipping their bodies so as to bring their beaks easily to the dripping orifice.

Between every beakful of water there was always a few seconds of hesitation and cautious looking about to assure themselves that all was safe. A moment's lack of vigilance might cost them their lives.

While the bluebirds were wetting their dry throats a flock of 20 Bushtits descended into a nearby pinyon tree and began sifting down through it, dispersing their blue-gray little bodies and notably long tails. Many were their soft, engaging and explosive *tsts*, and alarm notes, *Sree-e-e*. But theirs was not a visit for water—not one descended to the trough or to the dripping pipe. Suffice for them was the opportunity to look over the old tree for insect food; anything from small beetles, moths and eggs to scale insects was meat for them. This serious business over, the restless merry-hearted bird midgets flew away to new hunting sites. One bird went first to lead the way, then another and another followed until all the loitering company, including a late straggler or two, were together again.

With patient eyes we followed these very active winsome gleaners through some half dozen shrubs and trees before losing them from view.

Shortly after the Bushtits left, three Mourning Doves flew with musical wing-notes into the big sumac bush which the Jay had used as its approach perch. Quietly and unnecessarily long it seemed to us, they waited there, perhaps unusually hesitant because of our presence. "This place," they seemed by their behavior to say, "just doesn't have its long-familiar look. Let's be cautious."

While they waited, five perky Bailey Mountain Chickadees with black, gray and white coats and black beady eyes came in to loiter and to drink. Without any preliminary landing in bushes, they descended right onto the pipe, alighting all in a row. Then one after another they moved up, clung to the edge of the dripping orifice and, turning almost upside down, put their beaks to the water. We now saw displayed in these decorous birds a spirit of cock-suredness, audacity and sometimes selfish aggressiveness not displayed in any of the other trough visitors. These

were traits we never before suspected in this sprightly versatile-voiced songster of the sun-drenched desert woodlands. Several times the bird quintet left and then soon returned for another drink. If there were other birds at the trough when the Chickadees came in, they generally sat about in respectful silence until the pugnacious little chicks temporarily withdrew.

Each time the Chickadees left they darted into their favorite nearby pinyon and there, while fidgeting about and gleaning for insect food, frequent-



Western Bluebird

ly gave forth their usual pensive four notes, the first two pitched higher. Occasionally they gave us a variation of three notes in which the saucy little vagabonds almost pronounced their well known name, "chick-a-dee." Then too, strange little wheezy squeaks and whistles came from their throats.

Every once in a while a big brown robin-sized strong-footed Thrasher, with monstrously long prominent sickle-shaped beak, came running along in relays up to the trough. The first evidence we had of his bold approach was a rustle in the thick carpet of dried leaves beneath the big sumac bush. When almost up to the trough he suddenly stopped, turned his head to one side as if better to see and listen, then quickly plunged his strong pickaxe-like beak into the soft earth, made several closely repeated thrusts and from his excavation brought up a fat brown beetle pupa. Having swallowed it he looked very proud and wise, then ascended to the brink of the far end of the trough and got his drink, some Chickadees nearby notwithstanding. Little if any attention he paid to the two cautious and patient doves still sitting in the Sumac bush no doubt hoping that their time would come to get a drink. After having probed successfully several more times for beetle pupa, "Pickaxe-Bill," as we called him, returned to his hide-out in the brush.

When the Bushtits, the Thrasher and

Chickadees all had retired, the two timid Doves came down from their lookout posts and got their drinks. Not only once or twice but many times they gently dipped their beaks in the cool water.

Neither these doves nor the other birds we saw that day paid the least attention to our talking, but when we so much as raised a hand or stretched a cramped leg they immediately became cautious and often retreated to the bush, returning only after some little time.

While walking back to the car, we came to a small clearing. Near one corner, next to the brushy margin, was the remains of an old house surrounded by the usual unsightly mess of rusty tin cans, old blown-out tires and cast-off clothing. "How incongruous," I thought, "in a place of such natural charm."

As we approached we were surprised by the strange frenetic cries of numerous small birds, dozens of them of various sorts, from Chickadees to Mocking Birds, Desert Sparrows, House Finches and Jays—a strange assemblage indeed and doubtlessly representing about all the songster residents in the area. Their nervous flights to and from a nearby pinyon, their hovering in mid-air and fluttering above a definite spot indicated something out of the ordinary was happening. It was behavior akin to that of birds dreadfully concerned with an owl. What could be the cause of their common anxiety and curiosity?

We watched the odd performance first from a little distance then slowly walked nearer. As we came up to the spot which seemed to be the center of noisy commotion, the birds retreated tardily to the brush but continued to move about nervously in the branches. Before us we could see the opening of an uncovered cistern some 15 feet deep. In it was a small snake, a Red Racer, excitedly crawling around the perimeter of the cement-lined bottom. It had undoubtedly by accident fallen in and by no chance could it get out. Seemingly fascinated, and at the same time uneasy at the sight of their common reptilian enemy, the birds were showing their concern in every way at their command.

When we walked away the feathered denizens flew back to their beratings. It was now late afternoon and I suppose they kept up the commotion until darkness made it impossible for them to see the snake. Yes, birds have their common troubles too.

Why don't you try an hour's watching at a lone spring? Your reward will be great. But don't forget your notebook. Take along too a young friend to share with you the marvelous lessons of Nature.

My Pupils Were The People of Navajoland

In the beginning, a language barrier stood between Alphine Renslow and her first classroom of pupils. She had to teach them the English names for familiar objects—and they returned this kindness by teaching her Navajo words. These smiling, dark-eyed children also gave her a deep love for the teaching profession, and a lasting appreciation of the admirable qualities of the first Americans—The People.

By ALPHINE RENSLOW

7HE FIRST job I took after graduating from college during World War II was not teaching — for which I had trained—but as a censor of Spanish mail for the government. Teaching I considered too boring and thankless. But after 16 months and 40,000 Spanish letters I decided a change was in order.

A friend showed me a bulletin at the university's employment bureau bidding young adventurers to teach school on the Navajo Indian reservation in northeastern Arizona. The author of this invitation painted a bright picture and every enticing word in the English language was employed in exactly the right fashion to intrigue the imagination.

"Although the distance to the nearest town is 130 miles," the bulletin declared, "the fascinating scenery will make you forget the length of the trip—time will melt away."

I decided in favor of the Navajo job, not only because of the welcome change it would afford and the opportunity to save money far from the shops of town, but because of an erroneous belief on my part that the Navajos spoke Spanish and I would be able to continue my language training. Too late I discovered that the



Timid at first, but loyal, friendly and quick to learn are the children of the hogans in the Navajo country.

Apache, not the Navajo, had adopted Spanish.

I applied for the job and was accepted. In a few weeks I arrived at Gallup, New Mexico, where a group of government workers met my train and drove me out to Window Rock, the picturesque capital of Navajoland. It was a very charming place with a lovely patio and fountain surrounded by attractive little stone cottages. It was exactly as I had romantically imagined my new surroundings would be.

We new teachers remained at Window Rock several days and then were taken out to our individual schools. I was assigned to Chinle which is only two miles from fabulous Canyon de

Chelly and its awesome White House Ruins, an imposing cliffside monument to the ancients who once lived there.

The miles did melt away into a kaleidoscope of fantastic combinations of breathtaking color. An overpowering and yet soothing silence reigned over a land splashed with magnificent shades of every imaginable hue. Strange and beautiful rock formations were silent guardians of this majestic terrain. As we drove on I became more than ever anxious to meet the people who lived in this stirring land.

We stopped at a trading post—that combination bargain basement, general store and pawn shop where the Navajo leaves valuable jewelry in ex-

change for needed articles until he is able to redeem it—and there I met my first Navajo family, a mother and two small girls who timidly requested a ride a few miles up the road.

Mother and daughters were dressed alike in billowing skirts and bright velveteen blouses adorned with silver coins. Their hair was long and worn in buns tied with red string, and their smooth arms were covered with beautiful turquoise and silver bracelets. Their charm and shyness were immediately apparent.

I spoke to the mother in Spanish and she giggled. Then my teacher companions told me the horrible truth. The Navajo, unless he spoke English, spoke Navajo, an ancient and difficult language.

We rode on in silence. Then we arrived at Chinle, and instead of the second Window Rock I had expected to find, all that was there was a row of cottonwoods, a few houses, a small hospital, the power plant and the school.

I was too busy during the last remaining summer days before the start of the new term to dwell upon my miscalculations. We painted our school furniture and performed the thousand and one tasks necessary to make a school ready to receive pupils.

On registration day children began arriving from all directions. Ours was a boarding school where the pupils lived in, because of the great distances to their hogans. They came mostly in horse-drawn wagons and I could not help marveling at the scene. Not long ago pioneers were fleeing from Indians in these same wagons—and now Indians peacefully were transporting their children in them to the white man's school.

"Did you draw the paper or mechanized division?" one of the matrons in charge of the dormitory asked me.

"What do you mean? I am to register the children," I replied.

"Come over later and I'll show you," she laughed.

From then on I was too busy registering shy, hesitant children to wonder what the mechanized division could be. I had an interpreter to help me with children whose parents spoke no English. We obtained a complete list of clothing for each child, age, parents' names and location of the family hogan. If the child's Indian name was too complicated, I was called upon to give him or her a temporary substitute name. Naming twin girls was a novel experience, especially having to dream up names for them and others on the spur of the moment.

Many of the parents were not sure of birthdates, and would answer, "He

was born when the corn was so high," and accompany this with gestures.

Later that day I learned what the mechanized division was. In one of the dormitories the matrons were giving butch haircuts to the young pupils. The place reeked of a strong disinfectant which was applied to each close-cropped dome to curb the prevalent head lice.

The next day I was told that I was to teach the little ones who had never been to school before, and who, of course, did not speak any English. Monday morning, 29 little Navajos, scrubbed and silent, filed hesitantly into my room. I spoke in English; they listened in Navajo. Everywhere I looked were huge dark eyes and silence! At noon in the boarding house I pleaded, "Won't they ever talk?"

This brought hearty laughter from the old timers. Several weeks later when the children had accepted me as part of school life, I pleaded, "Won't they ever stop talking?"

I had learned that the Navajo, once he feels part of his surroundings is an incurable verbal visitor. This fondness for conversation came into daily classroom use, as our main task was to teach English. Our daily procedure was as enlightening for me as it was for them. I would hold up a picture or an object and say its name in English; the children would then repeat after me. They would then say the name in Navajo, and I would repeat after them. We then would say the names in Navajo and English. By learning together, we reinforced the learning process, and also became better friends, which was, after all, the most important accomplishment.

When we finally progressed to sentences, one of their favorites seemed to be "I am a Navajo boy," or girl, or as they would say, "grr." After weeks of repeating this every morning, the suspense was too much for one little fellow, and he asked, "What is a *Nabaho*?" Then I learned that the Navajo's name for himself and his tribe is *Dine* which means The People, leaving no doubt as to his being a first American.

The smoothness with which my classroom was running was interrupted one day when the children began talking excitedly about the *Yéi-be-chai*, important gods in the Navajo world. Every year at this time some of the men who lived in and around Chinle would put on weird headdresses, paint their bodies and make fantastic noises, impersonating these gods. They would call at the houses and schoolrooms for donations of food. It was an Indian version of our Hallowe'en trick or treat and the children were afraid the

Yei would do something drastic to them if they were unfortunate enough to be caught.

The children were outside playing when we heard the strange noises for the first time. They ran screaming toward the classroom. I laughed and told them that the men were their friends. At that moment, in the midst of my assurances, one of the *Yei* came around the corner of the building in front of me. I forgot what I was saying to the children and started to run for shelter. I must admit I was the first to arrive in the classroom!

Having survived this episode, I felt that nothing else this desert land had to offer could bother me, so when one of the girls who helped in the school kitchen arrived with a message from the cook requesting my immediate presence, I proceeded to the kitchen with alacrity. I departed in the same fashion when I learned that a rattlesnake was resting behind the stove. The cook thought I would not mind killing it as the Navajo considered it offensive to their gods to kill a snake.

In spite of these two incidents, my stay with The People was an interesting and rewarding experience. This name fits perfectly the inhabitants of the enchanted desert—people of honesty, integrity and intelligence who love to sing and dance and play practical jokes; who rule their children with a soft voice and firm but gentle kindness; who give friendship not quickly, but when it is earned.

They are loyal and patient Americans living a nomadic life in a beautiful, but not always bountiful land. My work with The People instilled in me the desire to make teaching a life-long profession, and allowed me to live in and learn to appreciate a culture of a proud people who in spite of difficult living conditions never fail to appreciate the need for an inner peace of mind and soul, and who, to quote one of their prayers, ask "In beauty may I walk, with beauty before me, with beauty behind me . . ."

THE *Desert* MAGAZINE CLOSE-UPS

Alphine Renslow, author of "My Pupils Were The People of Navajoland," this month's true life experience story, lives in Tracy, California, now, but her first love still is the desert. Mrs. Renslow is a high school teacher at Tracy and considers writing her favorite hobby. She is the mother of two girls, Florence and Suzanne.

The story of John and Sybil Huntington -- *From Cripple Creek to Contentment*

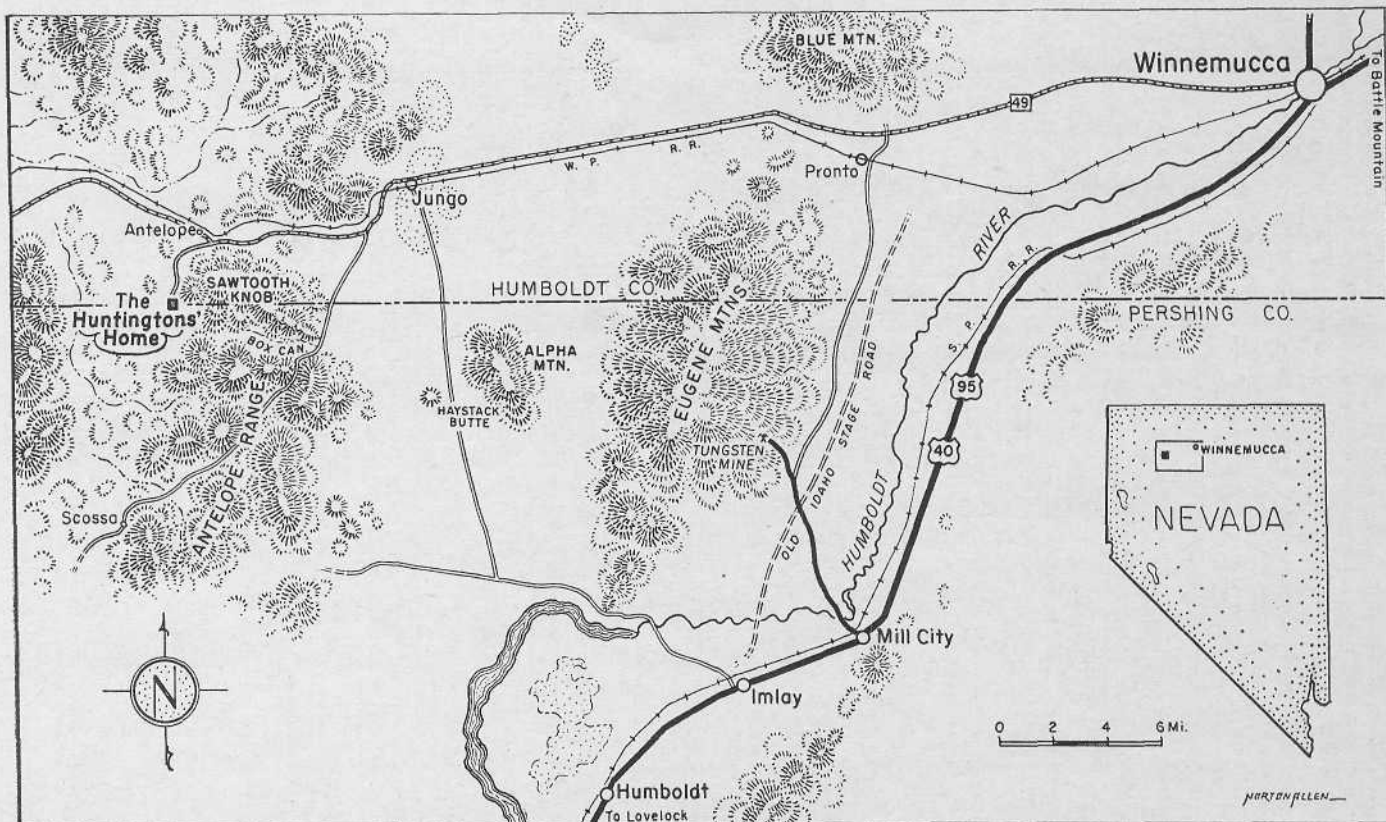
For 55 years they have traveled together the trails from bonanza to mining boom—not in search of mineral wealth, but in pursuit of their vocations—John as a surveyor, Sybil as a homemaker and artist. The real treasure of the desert they have found within themselves.

By NELL MURBARGER
Photographs by the author
Map by Norton Allen

FROM THE Humboldt River bridge at Winnemucca, Nevada, a lonely road leads west to the Black Rock desert outposts of Jungo and Sulphur. Midway between these two remote settlements and nearly 50 miles from the nearest postoffice, the desert's gray carpet of sage is cleft by

John and Sybil Huntington of Sawtooth Knob, Nevada. At 83 and 86 years of age, respectively, they are too busy for the rocking chair.





the bold promontory of Sawtooth Knob. Near the west base of Sawtooth, I had been told, I would find the home of John and Sybil Huntington.

All I knew about the Huntingtons was that in a letter to *Desert Magazine*, Bernice Ferris of Stockton, California, had mentioned them as interesting and delightful people of the desert. After participating in a dozen mining booms the Huntingtons had settled, 20 years before, at Sawtooth—"not to the oblivion of armchair retirement," wrote Mrs. Ferris, "but to go on living full and satisfying lives—John as a land surveyor; Sybil as a painter of desert scenes . . ."

I had made the long, dusty drive from Winnemucca, and now Sawtooth Knob at last was looming boldly on my left. Barely visible against the dry desert slope a mile to the south was a small cluster of buildings. I was almost certain that this was the place I was seeking—but what I might find there was anyone's guess. Story tips, whether from friends or strangers, do not always pay off—but there's always that wonderful once-in-a-dozen times when they do!

Five minutes later I knew this was going to be one of those times.

The man who answered my rap on the door was tall and pleasant in appearance, with a smooth tanned face and the fine leanness one associates with men of the desert. His shirt and trousers were of khaki drill and perched atop his thinning hair was a jaunty beret.

That John or Sybil Huntington had never seen me before, and had no idea I was coming—or that I was travel-grimed and dusty—was of no concern to them. Even before I had time to proffer my card or introduce myself, I was sitting in the best chair in their attractive living room and in my hand was a frosty glass of ice-cold lemonade.

Occupying shelves and tables throughout the room were new books and current magazines of good character and decorating the walls on all sides were oil paintings and watercolors—sincere, powerful pictures, in which was captured the glory of sunset and storm and sage, and the bigness of the desert sky. Simply to look at that gallery was to know the fragrance of sun-swept lands, the quiet peace of Nevada's hills.

Visible through an open doorway leading into the hall were more paintings; and when I followed my hostess to the refrigerator for another glass of lemonade, I found even the kitchen walls and cupboards adorned with scenes of winding country roads and tall poplars and wild ducks flying.

Amazed at the extent of this one-woman exhibit, I asked Sybil how many pictures she had painted.

"How many?" the woman's laugh at my obvious wonder was filled with amusement. "Why, I haven't the faintest idea! I suppose there must have been thousands of them because I've been painting commercially for almost 70 years!"

Seventy years! My amazement now

was directed at my hostess rather than the fruits of her labor.

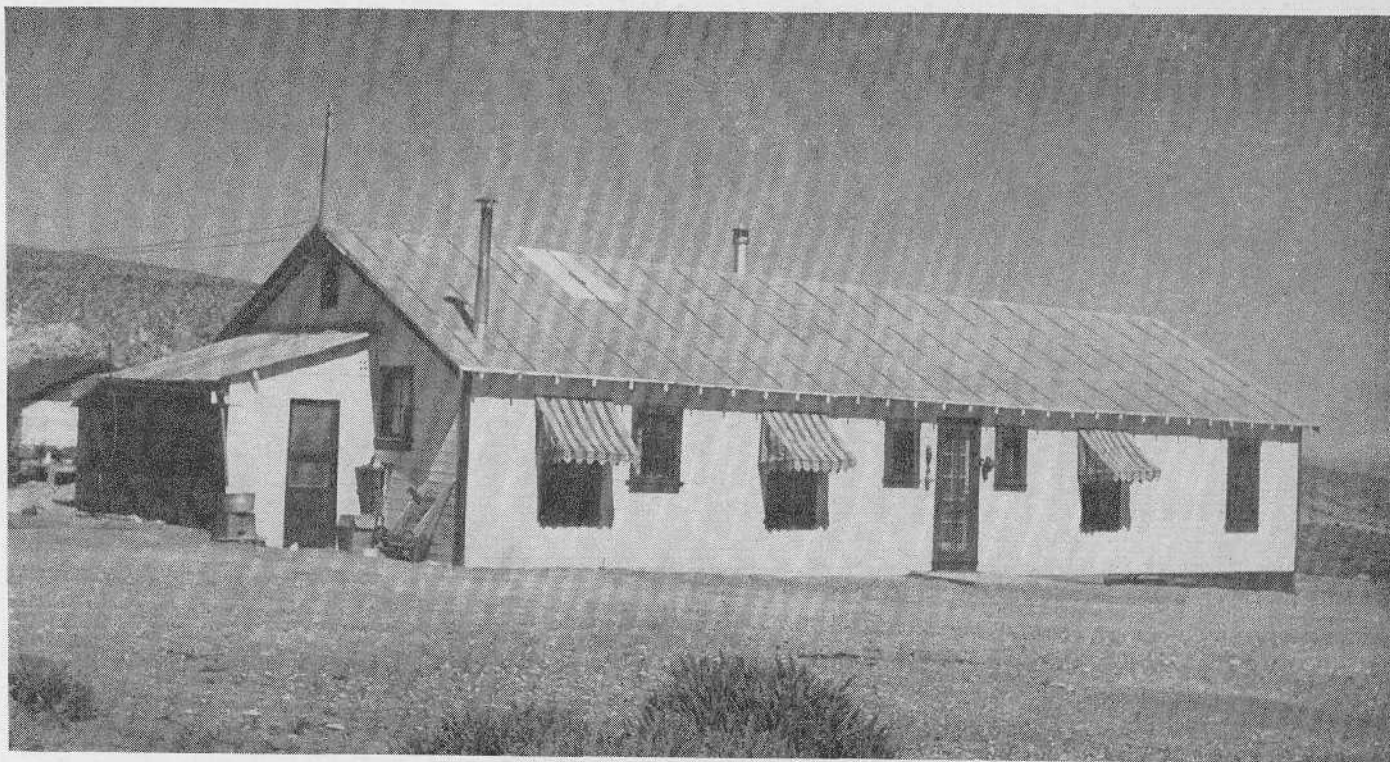
Looking at her I saw a tiny, vivacious and very feminine woman; one whose cheeks and lips were fetchingly rouged, whose bobbed white hair was as neatly curled and dressed as though she had stepped from a beauty parlor only moments before. She was wearing jet earrings and a black-and-white flowered silk jacket over neat blue slacks—and all the while I studied her face her eyes were sparkling in a suggestion of mischief.

"How can you possibly have painted for nearly 70 years?" I asked, "you don't look to be more than 65 years old."

"That's a very nice compliment," said Sybil Huntington, "but I'm afraid you'll never win prizes for guessing ages! I am 86 years old; John is 83."

Sybil was born and reared in Illinois. In 1890 at the age of 20 she entered Washington University to study art. There her work proved so exceptional that nine of her charcoal drawings were selected by the School of Fine Arts for exhibit at the 1893 Chicago World's Fair. From 1892 to 1895 she taught art classes at Forest Park University and Austin College in Illinois. In Sybil's veins, however, coursed pioneer blood and in 1896 she emigrated west to the bustling frontier city of Denver where she continued her art teaching career.

John G. Huntington was born at Canton, Ohio. At five he moved with his parents to Kansas. Grown to young



The Huntingtons' home—formerly a mining company bunkhouse which they acquired as part payment on a wage claim. They have lived in their remodeled 10-room home for the past 20 years.

manhood, he had studied surveying and ultimately secured work with a Colorado engineering firm. At Del Norte, in Colorado's San Luis Valley, it was John's good fortune to meet Sybil and they were married in Denver in 1901.

"John was surveying in the Victor-Cripple Creek district and it was there I set up housekeeping as a bride," recalled Sybil.

"We arrived in Victor after dark. The streets were blazing with electric lights and swarming with people. Three street car lines were in operation between there and Cripple Creek; music was blaring from dozens of flossy cafes and big gambling palaces, and I was immensely thrilled by the thought of living in such a gay and exciting place!

"And then, as they say, 'came morning'. When I saw this place in the harsh light of day I scarcely could believe my eyes! The town was positively shabby! Most of the buildings were crude and unpainted — hardly more than shacks; and even the fancy cafes and gambling palaces were fancy on their street fronts only. I was terribly disappointed—and secretly, was quite certain I would never like living in a boomcamp!"

Despite her early disillusionment, Sybil Huntington learned to tolerate and then to love the hurry and excitement that attended daily life in the new mining towns of the West.

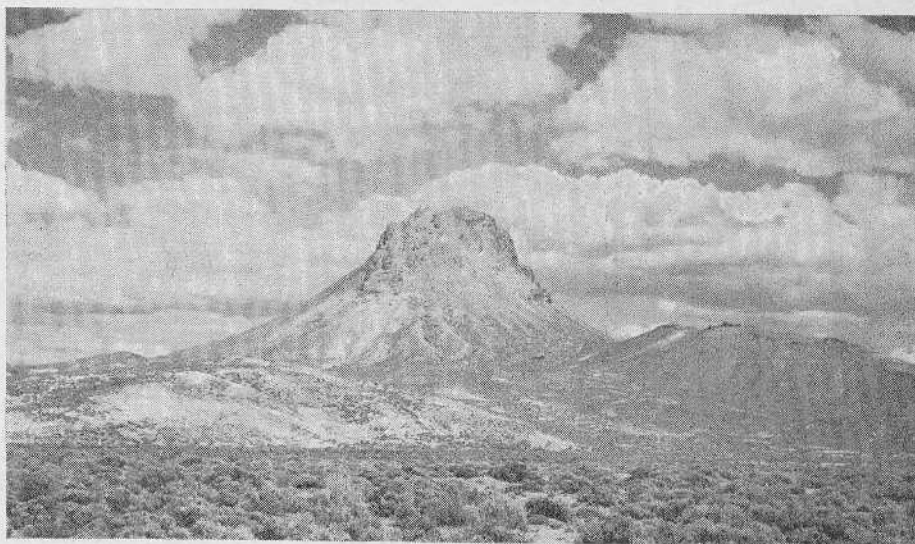
As the boom at Cripple Creek subsided, John's employers sent him west to Rhyolite, Nevada, then in the throes of its spectacular boom. With his work completed at Rhyolite, John Huntington and his transit—and Sybil Huntington and her artist's palette — followed the mining stampedes to Skidoo and Greenwater, California, in the Death Valley region; then, back in Nevada to Goldfield, Tonopah, Seven Troughs, Mazuma and Rochester.

"Of all the experiences we had in the years we followed the boomcamps, the most frightening took place on the 19th day of July in 1912," said Sybil.

"We were living at Mazuma, a gold-mining town 25 miles northwest of Lovelock. John was working in Black Canyon back of Mill City, and our baby son, Morgan and I were alone. Along in the afternoon Morgie and I started down the hill to the business section of town to buy a loaf of fresh bread. We had gone only a short distance when a hot, gusty wind began whipping through the canyon. I remembered that I had left the windows open, and as I didn't want the house blown full of dust I grabbed the baby and hurried back up the hill.

"We had scarcely entered our yard

Sawtooth Knob, a prominent landmark in the area, lies practically in the Huntingtons' front yard.





John and Sybil in the living room of their home. Paintings above them are examples of her work.

when a cloudburst struck near the head of Seven Troughs Canyon. The flood roared down through the higher town of Seven Troughs and when it reached the narrowest part of the canyon where Mazuma was located, the water was traveling in a sheer wall 20 feet in height. Everything in its path was destroyed. Well - constructed business buildings and homes were crumpled and crushed as if made of cardboard and heavy steel vaults were carried two miles down canyon by the force of the water! Not one building was left standing in the trough of the canyon and 11 persons were killed.

"If we hadn't turned back to close the windows, the baby and I would have reached the bakery at the bottom of the canyon at the same moment the cloudburst hit."

"God really had His arm around them that time," added John Huntington quietly.

From Mazuma, the Huntingtons followed the boom to Rochester in Pershing County — another briefly spectacular camp, which, like Rhyolite, Skidoo, Greenwater, Seven Troughs and Mazuma, is now a ghosttown.

During the period until Morgan reached the age of 10, Sybil Huntington laid aside her brushes and devoted all her time to her boy. But as he grew into young manhood she resumed her art work and her paintings have gained wide recognition.

Her oil portraits of Western-type girls were on the cover of *Sunset Mag-*

azine in 1921 and 1922; in 1926 she was commissioned to paint four oils of University of Nevada campus scenes for reproduction in full color in the University yearbook, *The Artemisia*; and in 1930 painted four more oils for the yearbook of that season. Her painting, *Sunset and Sage*, first reproduced 20 years ago in *Nevada Newsletter*, and later in *The Wolf*, a university publication, is still a best seller on postcards and note paper. Two of her paintings, *The Gold Mill* and *Desert Wild Flowers*, have hung in the library of the University of Nevada for more than 20 years; her oil, *Death Valley and the Panamints*, won first award at the Nevada State Art Exhibit in 1939, and for the past several years she has exhibited at the Nevada Art Gallery.

Sybil Huntington considers the finest compliments ever paid her work have come from the lips of old desert miners and prospectors.

"One time when an old prospector was eating dinner with us, I noticed him studying that still life, yonder—" she indicated a large oil showing Hearts O' Gold cantaloups, one of them cut to reveal its rich, salmon-colored flesh. "Finally he asked, 'You paint that pitcher?' I said I had, and asked him what he thought of it. The old man studied it awhile longer, and then shook his head and answered softly, 'Them melons look so danged real it seems t' me you oughta pass 'em around.'"

"And then, that picture over there," she pointed to a large canvas in which a lonely trail is shown climbing upward into gaunt desert hills — "one time John asked an old desert man what he thought of the perspective in that painting—the distance," he explained.

"'Waal,' said the old man, 'I don't know nothin' much about your perspective stuff . . . but I sure know it looks like a heap farther than I'd want to walk.'"

Since their travels have covered most of Nevada and other parts of the West, I was curious to know how the Huntingtons came to settle at Sawtooth Knob. When I put the question to them, John grinned.

"It was sort of an accident," he said. "Some folks might call it Fate."

"Back in the 1930s some fellows acquired a group of placer gold claims here, formed a big stock promotion company and hired me to survey their property. By the time I completed the work officials of the company were involved in litigation among themselves, company funds had evaporated and there was no money left to pay the surveyor — meaning me. I took the matter to court and got a judgment for the full amount due me. Result was I came out of the deal owning all the company's placer claims and all improvements—including a large bunkhouse built for company officials and visiting stockholders.

"Now that we owned the property, we didn't know what in Sam Hill to do with it! This was in the middle of the depression when there was no possible chance of realizing much from its sale. We knew the bunkhouse and other improvements would soon disappear if there was no one around to keep an eye on them.

"In the end, we decided that the best thing to do was to remodel the bunkhouse and move out here to live."

Sybil laughed. "It was funny," she said. "We had always lived in rather small houses, and had never really known what it was like not to be cramped for space; then, when we moved here and found ourselves with ten whole rooms we scarcely knew what to do with all that wonderful emptiness.

"I use one room for my art materials; John has a special room for his surveying instruments; we have scads of guest rooms, extra bedrooms and storerooms . . . and I think there still are a few rooms for which we haven't found uses."

Nearest postoffice and telephone are at Winnemucca, 46 miles to the east over an unpaved road closed occasionally in winter by snow. The Hunting-

tons' closest neighbors are at the small mining and milling camp of Sulphur, a dozen miles to the west. Water, ample for all household use, comes from a 40-foot well located a few yards from their house. Although highly mineralized and slightly flat in taste, the Huntingtons have found this water to be exceptionally healthful. A wind-powered generator, hooked to two six-volt storage batteries, supplies adequate electricity to operate several 40-watt lights and an electric radio. Even prolonged lack of wind, however, does not mean a news blackout at the Huntington home since a battery-operated radio also is maintained in working condition.

The Huntingtons' only son, Morgan, was graduated from Mackay School of Mines at Reno and is now a civil engineer in Maryland.

"He has a fine wife and three big boys," said John. "They come out to see us whenever Morg can get away from his work. The greatest delight of their lives is to put on blue jeans and cowboy hats and climb over old Sawtooth Knob to prospect for gold and hunt rocks and arrowheads . . ."

In the course of our talk that evening, mention was made of Nevada's one-time U.S. Senator, William P. Stewart. John Huntington remarked that he had known him when both were residents of Rhyolite.

"He was an old, old man, then," said John. "He must have been past 80."

"What do you mean saying he was an old man if he was only 80!" bridled Sybil. "Eighty's not old!" and then, she laughed — a merry, light-hearted laugh, as fresh as jonquils in April. "Sometimes," she went on, "we find ourselves referring to others as old, when maybe they're 25 years younger than John or me. It's a great privilege," she added, "to have lived so long . . ."

"Yes," John nodded. "This may not look like much of a home to some folks . . . but we've found it a good place to grow old."

No one spoke for a moment. I looked at the 86-year-old Sybil, modishly clothed, her hair attractively dressed, her eyes bright and sparkling and every expression that crossed her face reflecting a keen interest in life and what the next day, the next hour, might bring.

I shifted my gaze to John Huntington, sitting at her side—her husband and constant companion through 55 years of life in rough mining camps and on the desert. I looked at the jaunty beret, perched rakishly over one ear; at the smooth, suntan of his face, and the lean, hard strength of his hands—hands still well able to per-

form the exacting work of his life's profession at 83 years of age.

I shook my head.

"I'm sorry to correct you," I said,

"but you're wrong. You haven't found Sawtooth Knob a good place to grow old. You've found it a good place to stay young."

Desert Quiz

Here is the Desert Magazine's monthly brain exercise. It is written for those who would become better acquainted with the history, geography, Indians, plant and animal life and the lore of the Great American desert. You will not get all of them right, but will have gained some new knowledge when you have taken the test. Twelve out of 20 is a good tenderfoot score. From 13 to 15 is fair, 16 to 18 good—and any score over 18 shows superior knowledge of the desert. The answers are on page 34.

- 1—In driving your car through heavy sand you will probably get best results by—Letting your wife drive while you push..... Putting chains on the wheels..... Reducing the air pressure in the tires..... Turning the car around and backing out.....
- 2—The territory known as the Gadsden Purchase was bought from—Spain..... France..... The Indians..... Mexico.....
- 3—To reach the famous Phantom Ranch it would be necessary to—Cross the Paiute reservation in Nevada..... Climb the Enchanted Mesa..... Go to the bottom of Grand Canyon..... Take a trail out of Taos.....
- 4—The metallic name of the mineral known as Malachite is — Copper..... Iron..... Silver..... Zinc.....
- 5—The staple meat in the diet of the Navajo Indians is—Beef..... Mutton..... Wild game..... Pork.....
- 6—The historic feud between the Clanton gang and the Earps came to a showdown in — Ehrenberg..... Bisbee..... Prescott..... Tombstone.....
- 7—One of the following is a poisonous lizard—Leopard lizard..... Chuckawalla lizard..... Gila Monster..... Alligator lizard.....
- 8—Highest peak visible from the California desert is — Telescope peak..... San Geronio..... Charleston..... Mt. Whitney.....
- 9—The fleetest wild animal now found in Nevada is the — Bighorn sheep..... Antelope..... Mule deer..... Jackrabbit.....
- 10—The infamous Mountain Meadows Massacre took place in — Utah..... Nevada..... California..... New Mexico.....
- 11—The prehistoric Indian tribesmen known as Hohokam occupied the area now known as—Salt River Valley..... Havasupai canyon..... White Mountains of Arizona..... Mojave Desert.....
- 12—The man for whom the Bandelier National Monument in New Mexico was named was a — Trapper..... Archeologist..... Artist..... Scout.....
- 13—The common name of the desert plant of the genus *Fouquieria* should be spelled—Ocotillo..... Ocotilla..... Ocatillo..... Ocatilla.....
- 14—The stronghold of Cochise, the famous Apache chief, was in the—Dragoon Mountains of southern Arizona..... Superstition Mountains..... San Francisco Peaks..... Grand Canyon of the Colorado.....
- 15—The Bright Angel trail leads to — Rainbow Natural Bridge..... Summit of Mt. Whitney..... Bottom of Grand Canyon..... The old Indian salt mine in the canyon of the Little Colorado.....
- 16—Playa is a Spanish word in common use, meaning—Highway..... Mountain range..... Park..... Dry lake.....
- 17—The pueblo of the San Ildefonso Indians is in—Arizona..... New Mexico..... Utah..... Nevada.....
- 18—The padres of Southwestern history known as the Black Robes were — Franciscans..... Jesuits..... Dominicans.....
- 19—As far back as the records of the white man go, the home of the Cahuilla Indians has been — The Southern California desert..... Along the Gila River..... The Death Valley region..... Northern Arizona.....
- 20—Most of the flagstone used for building and landscaping in the Southwest comes from—Quarries on the Mojave desert..... Limestone deposits in the Ashfork area of Arizona..... Badlands of the Salton Sea area..... Shivwits Indian reservation in Utah.....

HOME ON THE DESERT

Bare Roots Cost Less--Do Best!

A new year means new life in your garden—and if you are landscaping on a budget it will pay you to investigate the bare root bargains your nurseryman now has in stock. Roses still are universal favorites, and gaining in esteem are the many fruit tree varieties which may be suited for your garden.

By RUTH REYNOLDS

Photographs courtesy Jackson & Perkins

HERE IN THE Southwest the new year gets off to a bright and shining start under the January sun, and the desert gardener may do likewise. This is an important planting season—when all deciduous

shrubs and trees can be planted bare-root and gardening can be enjoyed to the utmost. The sun, so fierce in other seasons, now is subdued and gentle, and gardeners are drawn as by a magnet to the outdoors.

White Bouquet, first white rose ever chosen for honors in the All-American Rose Selections. It is All-America floribunda winner for 1957.



I remember one day last January when, returning from town, I walked the two blocks home from the bus stop and discovered so many of my neighbors—among them women wearing costumes similar to the housewife's disguise I sometimes garden in—all out working in their yards. And all, it seemed, intent on planting roses.

Stopping to chat with one of them, I learned that besides the bush she was tamping into the ground, she had 35 other roses in the back patio.

"Truly, everybody must love the rose," I thought as I walked along. "Or is it the soil we love—or the desert sunshine?"

Then I remembered my own three newly planted roses and hurried home to water them and see how they were doing.

Four months later I was sure of two things: there are no roses as beautiful as those growing in your own garden; and a great many of my townspeople were in a position to find this out. My conclusions were confirmed by John Harlow, a local nurseryman, who estimated that between 75 and 100,000 new bushes were planted in town and that there were 10,000,000 more blossoms than any previous Tucson spring had ever seen.

Among the finest of these, I decided, were those in my garden. Two of my three bushes, the Peace and the Mirandy, are well known hybrid teas so I shall refrain from praising them further and go on to the floribunda, Circus, which was available to gardeners for the first time last year. It gave a performance worthy of its name and fame as 1956 award winner. The ever changing colors of its blooms—from yellow-red to orange-buff to pale pink—amazed me less than the final startling red blush on the face of the fully opened flower.

Ted was a bit disconcerted by this trick performing rose. He likes solid colors best but whether or not he likes them well enough to dig those two and a half foot deep and wide holes for them remains to be seen for I have my heart set on a couple of such roses. They are Crimson Glory, the hybrid tea given the highest rating of all red hybrid teas in the American Rose Society's 1956 *Guide for Buying Roses*, and the floribunda White Bouquet, a 1957 winner and the first white rose ever to receive the AARS award.

Its name is said to be particularly

fitting because it produces a succession of floribunda-like clusters of blooms, each of which may be cut as a perfect bouquet of gardenia-like flowers. Its statistics are: height and spread, 18-20 inches; buds, pale cream; flowers, pure white with a sweet and spicy fragrance; foliage, dark green; plant, decorative and disease resistant.

Another 1957 AARS winner is Golden Showers, a prolific flowering climber and the first in that category to be so honored.

An interesting new hybrid tea bi-color is Peaceful, a coral-rose to pale apricot seedling of Peace, with many characteristics of its famous parent. Sterling Silver is a thornless hybrid tea of pure lavender with a silver sheen. It is an innovation of Jackson and Perkins, as is White Bouquet.

Besides roses—old and new—there are many other bare root deciduous shrubs which should be planted now. If few of them are found at the nurseries it is because most gardeners will buy them only when they are blooming in containers and a better choice of colors can be made, especially among varieties which come in more than one color. They will cost more in bloom but may prove more satisfying.

The flowering fruits, being tree-like, usually are available as bare-roots. Flowering quince and flowering almond are two of the loveliest and most adaptable.

The former blooms very early in spring, has red flowers and, later, glossy green foliage. It is very hardy and grows from five to seven feet high.

The flowering almond also blooms early, with a mass of small, double flowers of pink or white. While it is classed as a shrub, growing to about six feet, sometimes it grows several feet higher.

Also available now are a great many deciduous trees. And now is the best time to plant them. As bare-root stock they will cost less and probably will grow best because their roots will have time to become established before any strength goes into top growth.

Later on they may be purchased and transplanted from containers but, like the shrubs, will be more costly. The nurserymen will have added to their prices the cost of "canning" and maintaining them.

Among deciduous trees, fruit trees currently are creating the most interest.

Your nurseryman, and often your neighbors, can give you advice as to the varieties of fruit trees best adapted to the elevation and temperatures at which you live. On the high desert some species of apricots, plums and



Sterling Silver, a thornless hybrid tea rose of pure lavender color with a silver sheen.

even apples and peaches do well. Citrus fruits may grow and bear fruit in a well protected patio, but not where there are freezing temperatures in winter.

On the lower desert levels in the southern deserts citrus trees thrive. Figs bear abundantly and this is one of the most graceful and satisfying trees in any garden. Grapes also do well on the desert, but here again it is important to select the right varieties for the locality in which you live.

Apples and pears require a "chilling period" in winter which the lower desert areas do not provide. In recent years new varieties of peaches, plums and apricots have been developed and tested for desert conditions but before

planting them it is well to determine whether or not they are adapted to your locality.

Our seasonless climate with continued warmth is detrimental to the flowering and fruiting of trees requiring an extended period of dormancy. In the higher altitudes the cold is adequate but there is too much danger from late frosts, so these fruits usually are confined to the valleys. Here too there is some frost damage but proven varieties of several fruits seem worth the risk. Birds are another hazard and the only solution seems to be more fruit—enough to share with them.

Among peaches the early varieties are recommended. They include: Early Elberta, a favorite with well known

Elberta qualities, ripening in June; Meadowlark, also a June peach and also yellow fleshed, similar to the Elberta. Starkling Delicious and Blazing Gold ripen in June too and are also yellow fleshed. Robin is a small-tree peach having white flesh and a bright red skin. Redwing is a white-fleshed peach with a red and creamy skin which grows on a large tree.

Plums that grow at the higher elevations are Beauty, Santa Rosa, Climax and Blue Damson. Imagine having your own Blue Damsons for plum jam!

Apricots do well in Tucson when a late frost doesn't catch them in bloom. And there are, I think, more good years than bad. Favorite apricot varieties are Royal, Reeves and New-castle.

The fig is probably the fruit which thrives best here. The choice varieties are Mission, Brown Turkey and Kadota.

Grapes do fairly well, with Thompsons being the most popular. Two other varieties, Cardinal and Perlette can be grown as successfully. All are early varieties. On the lower desert thousands of acres are commercially planted to grapes, of course.

To be productive a fruit tree must be well planted. A hole six feet in diameter and three feet deep should be prepared for it. The soil removed from the hole—if it is soil and not caliche—may be replaced after it has been mixed with at least one-fourth as much organic matter, about 15 pounds of sulphur and two pounds of 16-20-0 fertilizer. This should be soaked with water a time or two and allowed to settle before the tree is planted. Unless these preparations are made a month or two in advance only unfertilized soil and peat moss should come in contact with the tree roots.

Where there is caliche the same procedure applies except that top soil must replace the excavated materials and drainage must be assured. A water-holding basin requires a "drainage chimney" or post hole penetrating the underlying caliche.

Fortunately for those of us who must cope with caliche there now are available mechanical devices, with operators, for hire. Trenching machines and mechanical augers can make quick work of hole-digging and a rented air compressor and jack hammer might be effective in the hands of some gardeners.

These mechanical aids appeal to me greatly, especially when I think of all the beautiful trees—fruit, shade and ornamental—which may be planted through January and February and on into March.

LETTERS

Tamarack District Misnamed . . .

Desert: El Cajon, California

Harold O. Weight's "Treasure Trails in Old Superstition" (Oct. '56) mentions several times the "Tamarack District." Should that not be "Tamarisk" instead?

The Tamarack is a native of Northern California, Oregon and Washington and often is called the Lodgepole Pine. The tree common to our desert districts with the light green feathery foliage is a native of India and is the Tamarisk. I have observed that about 90 percent of the people in the sections where it grows incorrectly call it Tamarack.

R. H. FLOURNOY

Dear Mr. Flournoy: Mr. Weight wrote correctly. The mistake was made originally by early day settlers in Imperial Valley. But the name Tamarack became so well established as applying to a certain district in Imperial Valley that no one has ever bothered to change it, and it now applies to a school, a highway, and appears on all maps. Thanks anyway for calling this to our attention.—R.H.

Eastern Landgrab Apathy . . .

Desert: Philadelphia, Pennsylvania

Nell Murbarger's story of the impending Navy landgrab in Nevada (Desert, Oct. '56) aroused me to the point of writing a protest to our Senator James Duff. He answered that he heartily agreed with me and that in a mid-1955 speech he protested the indiscriminate use of our natural resources by the military.

When I visited the West in 1953 I was very much riled at the extent of the military's encroachment. I do not believe Easterners realize the beauty, peace and health found on the desert and so do not bend their efforts to saving it from the military. So many people I have talked to seem to think your country is bleak and desolate and not worth bothering about.

I long have admired the articles and way of life of Miss Murbarger. She is a lady after my own heart and I envy her.

KATHARINE GEARHART

Cached Bradshaw Loot . . .

Desert: Sparks, Nevada

I enjoyed reading "Lost Jesuit Mine with the Iron Door" in your October issue, partly because this mine is similar in name to the Treasure Cache with the Iron Door which I have been interested in for many years.

While prospecting off the Niland-Blythe Road in the Chocolate Mountains of California in 1927-28, I discovered a tunnel in the face of a small gulch about 25 feet wide and 25 feet deep. The tunnel was barred by a solid or faced iron plate door which was locked with a rusted chain and heavy padlock.

As far as I could determine, this tunnel was five miles from the former Chuckawalla Stage station of the old Bradshaw Stages, in that area between the Colorado River and Salt Creek Wash.

During the summer, electrical storms caused a landslide in the gulch and it was lost.

DON W. EDWARDS

State Park Proposed . . .

Anaheim, California

Desert:

A friend of mine who recently returned from Hot Mineral Spa (Desert, Nov. '56) reports that house trailers temporarily are barred from the main camp. I wonder if it would not be wise to instigate action to make this place a state park or county recreation area?

FRANK W. SACKETT

BURR BELDEN TO HEAD DEATH VALLEY '49ERS

At the close of a four-day annual Encampment program in which an estimated 10,000 people participated, the Death Valley '49ers, meeting in Death Valley's Furnace Creek Inn in November, elected the following officers for the coming year:

L. Burr Belden of San Bernardino, president; Alex Krater, Independence, 1st vice president; John Anson Ford, Los Angeles, 2nd vice president; Eugene Hoffman, Los Angeles, re-elected secretary; and Arthur Walker, San Bernardino, re-elected treasurer.

Winners of the annual Flapjack-Burro contest held at Stove Pipe Wells were: Hardrock Ed Hale, Trona, first; Silas Guy, Ridgecrest, second; and Badwater Bill of Virginia City, third.

Thousands of visitors camped out due to limited hotel facilities in Death Valley, and many hundreds of others brought their house trailers. This year's program was dedicated to the Wade family, descendants of Henry Wade, only member of the Manly-Jayhawker California-bound wagon caravan who was able to get his wagon out of Death Valley in 1849.

Favorable weather in Death Valley made the 1956 Encampment one of the most popular in the 7-year history of this event, and Peg Putnam, owner-manager of Stove Pipe Wells Hotel, president of the '49ers during the past year, received many expressions of appreciation from those present.

Here and There on the Desert . . .

ARIZONA

Visitor Center Planned . . .

GRAND CANYON — A visitor center is scheduled to be built at Grand Canyon National Park during the present fiscal year as part of the National Park Service's Mission 66 Program. The Grand Canyon center will cost an estimated \$333,700 and is one of 15 such centers planned for construction this year. — *Northern Yavapai Record*

Water Allotment Cut . . .

PHOENIX — Salt River Project farmers were faced with an unprecedented situation as the board of governors of the project allocated for this year's use only one acre-foot of water per acre of land. A critical shortage of stored water—expected to be down to 100,000 acre-feet at the start of the year—was responsible for the minimal allocation, project officials said. Water Users officials said subdivision lot water will be made available only each 28 days, instead of each 14 days as at present. Lot owners had been sampled, and preferred one soaking irrigation for a whole lawn. Many said they were now able to irrigate only half of it. — *Phoenix Gazette*

State Growth Predicted . . .

YUMA—Arizona and most of its communities will grow 50 percent every 10 years, compounded, predicted Carleton Green of the Stanford Research Institute. The expected state expansion means that in 10 years there will be one-third more people in most communities, one-third more land in use, and one-third more schools. — *Yuma Sun*

State Park Need Told . . .

PHOENIX—Although several bills to establish state parks in Arizona have passed one or the other branch of the legislature, all efforts have fallen short of success, declared the Arizona State Parks Association in reaffirming its stand for the creation of state parks. Continued growth of the tourist trade depends upon new areas of development for relaxation and outdoor adventure, the organization declared. — *Graham County Guardian*

Town Gets Locomotive . . .

GLOBE—The City of Globe received a 54-year-old steam locomotive from the Southern Pacific Company. The engine will be displayed in the city park. — *Phoenix Gazette*

Population Gains Seen . . .

YUMA — The population of the greater Yuma area will reach 56,000 by 1965, Stanford Research Institute studies indicate. This would be a nine-year increase of 78 percent over the present population of 31,500. Yuma County, now with 46,500 people, will increase to 71,500 in the same period for a 54 percent gain, the report said. The population growth in the next eight years is seen as a result of three principal factors: (1) continued expansion of military and government payrolls; (2) continued expansion of agriculture; and (3) the addition of a strong industrial payroll. — *Yuma Sun*

Indian School Costs High . . .

TUCSON—The cost of educating a reservation Indian in Arizona is three times greater than for a student in the public schools, the University of Arizona reported. Per capita cost of the Indian children in federal schools is approximately \$727.15 compared to the state's elementary school per capita cost of \$271. Arizona's estimated Indian population of 76,000 exceeds that of any other state and represents one-fifth of all Indians in the U.S. In 1955 the state had 23,361 Indian children enrolled in federal, public and missionary schools within its borders. — *Phoenix Gazette*

CALIFORNIA

Corvina Increase Noted . . .

SALTON SEA — Department of Fish and Game biologists report a growing abundance of corvina in Salton Sea. The ocean game fish weigh from one to 20 pounds and they have been taken from all around the shoreline and at all depths. Salton Sea is open to year-around angling and there is no limit on the number of fish that may be taken. — *Calexico Chronicle*

To Mark Maze Stone . . .

HEMET — Visitors seeking the maze stone monument in Reinhart canyon west of Hemet will soon be aided in their quest by location of a highway marker sign at the junction of Highway 74 and California Avenue, four miles west of Hemet. The sign will be erected by the state division of highways. The newly paved California avenue leads directly to the monument site, three miles north of the state highway. — *Hemet News*

Railroad Plans Desert Route . . .

PALMDALE — Southern Pacific Company already has acquired two miles of right of way east of Palmdale for a new rail route from that city to Colton to bypass Los Angeles on freight traffic. The company now is in the process of acquiring right of way as far as 10 miles east of Palmdale. The proposed line is expected to follow the general direction of state highway 138 from Palmdale to Summit in Cajon Pass—a distance of approximately 50 miles—where it would connect with Santa Fe's mainline. — *Valley Press*

Salton Addition Approved . . .

MECCA—The State Park Commission approved a lease agreement with the Imperial Irrigation District for 7772 acres of land to be added to Salton Sea State Park. Addition of these lands, plus federal government lands and some private lands still to be purchased, will create here a vastly larger playground than was originally planned by the state. The present park contains only one square mile with 3000 feet of beach while the planned park will have 18,000 acres and 18 miles of frontage on Salton Sea. — *Date Palm*

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BOOKS—MAGAZINES

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

SACRIFICE SALE—Goldak geiger; 2-inch crystal Jeb Scintillator; portable core drill with 20 feet extensions plus three carbide bits. \$1100 value, for quick sale: \$500. Peltz, 4516½ East 57th Street, Maywood, California.

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

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TELESCOPE SPECIAL: desert, all purpose model with stand. 30x \$14.95; 40x \$24.75. For other values in scopes, binoculars, write Marshutz Opticians, 531 S. Olive (Biltmore), Los Angeles.

Litterbug Law Sought . . .

RIVERSIDE—Supervisors of Riverside County have ordered a county-wide campaign to end the dumping of trash and garbage along public and private roadways. The County Board of Trade and County Counsel Ray T. Sullivan have been asked to jointly draft a program aimed at controlling highway littering. Existing county laws will be examined to determine how they may be strengthened for more effective enforcement. One of the loopholes in the present law which is expected to be changed is the provision that only the owners of the private property violated can file a complaint against those persons who trespass upon their lands to dump trash.—*Desert Sentinel*

Cayon Reservoir Probed . . .

MECCA—First step to investigate the existence of a huge underground water reservoir in which is stored vast quantities of Colorado River water, was taken by the Coachella Valley County Water District with the authorization of a test well east of Mecca. If the well near the mouth of Box Canyon is successful, the district hopes to recover water put underground inadvertently from the district's settling basin at the canyon mouth. It is believed that last year alone 55,000 acre feet of water seeped through the settling basin bottom into the underground reservoir.—*Coachella Valley Sun*

NEVADA

Small-Tract Solution Seen . . .

LAS VEGAS—Thousands of Nevadans, concerned with Clark County's small-tract program which was described as a "mess" two years ago, were told by Edward Woozley, director of the Bureau of Land Management, "that it won't be long now before just about everything is cleared up." Almost half of the enormous back-log of small-tract applications have been cleared in the last 12 months, according to Woozley. There still are 6573 applications in conflict with gravel claims, but these are not in jeopardy insofar as their leasing period is concerned since they will be held in suspension until the conflicts are resolved, he said.—*Reese River Reveille*

State Made Dispersal Area . . .

CARSON CITY—All of Nevada has been designated by the federal government as a dispersal area. This makes the state eligible for new defense installations, industrial plants, testing installations or any other facilities affecting national defense or supply goods to the federal government.—*Pioche Record*

Land Survey Underway . . .

CARSON CITY—The U. S. Geological Survey estimated that only 12 percent of Nevada has been adequately topographically surveyed. An additional 20 percent of the state's area is being mapped at the present time and at the present rate of progress, topographical surveying of the entire state will be completed within 20 years. Mapping of about five percent of Nevada's land surface was completed last year and now is on the computation table.—*Nevada State Journal*

Power Application Filed . . .

LAS VEGAS—Nevada's first application for a share of electric power from the \$422,000,000 Glen Canyon Dam on the Arizona-Utah border was filed by the Pahrump-Ash Meadows Improvement Association with the Colorado River Commission and the Interior Department. The Southern Nevada organization of farmers, cotton growers and businessmen has requested an allocation of 21,099,954 kilowatt hours of power annually from Nevada's share.—*Nevada State Journal*

State Leads in Growth . . .

CARSON CITY — Nevada leads the nation in population growth with a gain of 47.1 percent since the last census in 1950, the census bureau reported. California tops the states in total population growth, but Nevada took top honors percentagewise. Estimates placed the state's population at 235,000 — compared to 160,083 in 1950.—*Pioche Record*

To Appeal Test Case Fines . . .

GARDNERVILLE — The lawyer for four Indians convicted of game-law violations and fined \$50 each said the case will be appealed in district court. The Indians shot the deer out of season and then informed state fish and game officials of their action. It was their intention to test in the courts their claim that they have perpetual hunting and fishing privileges on their lands, regardless of state laws. Those perpetual privileges are accorded the Indians in treaties negotiated with the various tribes by the federal government many years ago. Contention of state officials is that, since the Indians now are citizens, the rights granted them under treaties have been abrogated.—*Record-Courier*

Pinenut Crop Bounteous . . .

FALLON—A bumper crop of pinon nuts is reported in the Fallon area, especially on Carroll Summit. The crop is believed the largest in recent years, a sharp contrast to the situation last year when there were hardly any at all.—*Fallon Standard*

NEW MEXICO

U.S. to Sell Timber . . .

ALBUQUERQUE—Creation of a major industry in Northern Arizona was seen in a U. S. Forest Service announcement that 6,000,000 cords of pulp timber will be offered for sale in the Colorado Plateau. The offering is the largest ever made by the service. Purchaser of the timber will be required to have a large pulp manufacturing plant by 1962. Timber involved in the sale would be cut over a 30-year period in an area covering more than 1,500,000 million acres of national forest timberland in Northern and Eastern Arizona and Western New Mexico.—*Phoenix Gazette*

Water Problems Studied . . .

LAS CRUCES—It will take more than a few good rains to erase the water problems of New Mexico and the Southwest, but scientific attacks on water problems hold promise of reducing—if not eliminating—a good many of them. These are the conclusions of experts presenting papers at New Mexico's first water conference at N.M. A. & M. college. Cost of Missouri River water delivered to Elephant Butte reservoir would be \$149 an acre-foot and delivered to the farm the price would jump to \$306, it was estimated. De-salting Gulf of Mexico water would price water from \$162 an acre-foot to \$350 under several different methods now available.—*Grants Beacon*

Jicarilla Educational Fund . . .

SANTA FE—The Bureau of Indian Affairs announced that the Jicarilla Apache tribe of New Mexico has established a million-dollar trust fund to provide college scholarships for its younger members. The fund chiefly represents income from oil and gas leasing of tribal lands. Grants will be made to candidates selected by a scholarship committee of the tribe and will be available on the basis of standards established by the committee.—*Mastertrey*

To Enforce Hunting Ban . . .

CARLSBAD — Superintendent R. Taylor Hoskins announced there will be no relaxation of the no hunting regulations in Carlsbad Caverns National Park. Hunters' attention was called to Federal regulations making all National Parks and National Monuments wildlife refuges. All boundary signs at Carlsbad have been renovated to provide clearly defined boundaries and large signs in both Spanish and English have been placed on all roads entering the park at the boundary.—*Eddy County News*

Indians Reject Grain Plan . . .

TAOS — The All-Pueblo Council, representing 18,000 Indians of northern New Mexico, rejected the federal government's plan to provide surplus grain for livestock. The council said conditions imposed by the government were so drastic and so full of restrictions that the plan was unrealistic. Two representatives of the council were ordered to Washington to seek more liberal terms from the Department of Agriculture.—*El Crepusculo*

Mineral Production Record . . .

ALBUQUERQUE — New Mexico set an all-time high record for the production of solid minerals during the fiscal year ended June 30, 1956. Production totalled \$155,974,138—\$45,000,000 more than the state's production for the preceding year. Copper, with a volume of 70,533 tons and a value of \$61,567,038, led the field in minerals produced.—*Mining Record*

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Boys Ranch Drive Launched . . .

BELEN—A statewide county-by-county campaign for \$52,500 for support of the New Mexico Boys Ranch is underway. The ranch, haven for homeless boys, has about 900 acres of irrigable land and 2000 acres of range land.—*Grants Beacon*

Navajos Receive \$27,000,000 . . .

SANTA FE—Bonus bids of over \$27,000,000 were received for oil and gas leases on 103,000 acres of Navajo Indian land near the Four Corners area. The bids represented the highest offering ever made for oil and gas leases on Indian lands at a single sale. The total bonus offered for 101,856.73 acres of tribally owned land was \$26,927,642.57. For 1079.34 acres of "allotted" or individually owned lands the aggregate bid was \$548,574.38. All lands included in the offering are

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PALM DESERT, CALIFORNIA

in San Juan County, Utah, and San Juan and McKinley Counties, New Mexico, and are in the general vicinity of Ute Mountain Indian lands in southwestern Colorado which brought total bonus bids of \$7,600,891.20 for 53,120 acres in a sale held just a month ago.

UTAH

Rainbow Bridge Spared . . .

GLEN CANYON—The Bureau of Reclamation reported that Rainbow Bridge National Monument near the proposed Glen Canyon Dam will be protected from inundation. It will not be damaged in any way by the reservoir or by construction activities. The following are other facts concerning the dam: it will rise 700 feet above foundation bedrock to become the fourth highest dam in the world and only 27 feet shorter than Hoover Dam; Glen Canyon will be a concrete arch structure with a crest length of 1400 feet, a radius of 1000 feet and a maximum thickness at the base of 425 feet; the reservoir, with a maximum elevation of 3700 feet above sea level, will impound 26,000,000 acre feet of water; surface area will be 153,000 acres, extending 186 miles up the Colorado River and 71 miles upstream on the San Juan River; powerplant will have an installed capacity of 800,000 kilowatts; and the National Park Service is at present developing a master recreation plan for the area surrounding the dam site similar to the development on the shores of Lake Mead. The \$421,000,000 dam will require the following materials: cement—920,000 tons; steel products—52,000 tons; electrical equipment 16,000 tons.

Utah Population Rises . . .

SALT LAKE CITY—Utah has increased 123,000 in population since 1950, the census bureau estimated. In that year there were 688,862 residents in the state compared to 812,000 today. This is an increase of 17.9 percent.—*Pioche Record*



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Road Survey Rushed . . .

FLAMING GORGE — With increasing signs that severe winter weather was imminent, additional state surveying crews were speeded to the job of laying out the Greendale-Flaming Gorge road. Meanwhile, Wyoming is making preliminary aerial surveys of the terrain between U. S. 30, east of Green River, and the Spring Creek gap on the Utah-Wyoming state line; and of the area around Green River to be traversed by the proposed new interstate highway. The U.S. 30-Flaming Gorge photography is the first step to be taken in the search for a short, east side route between the Flaming Gorge area and U.S. 30, as part of the proposed U.S. 30-40 connection.—*Vernal Express*

Sun Energy Expensive . . .

DENVER, COLORADO — Dr. John A. Duffie, director of the solar energy laboratory at the University of Wisconsin, reported that solar power is costly to collect when compared with conventional energy sources. Sun-power which hits a square yard of the earth's surface in a day is equal to about one horsepower and this daily power totals about 2000 times the nation's total energy need. He predicted that house heating will be the first solar energy use which will become commercially competitive. — *Phoenix Gazette*

Bryce Remains Open . . .

BRYCE CANYON — All lodging and meal facilities in Bryce Canyon National Park are now closed for the winter, according to Acting Superintendent Wayne Howe. However, the park itself will remain open all winter with snow to be removed from the roads to Sunset, Inspiration and Bryce Points.

DESERT QUIZ ANSWERS

Questions are on page 27

- 1—Reducing the air pressure in the tires.
- 2—Mexico.
- 3—Go to the bottom of Grand Canyon.
- 4—Copper.
- 5—Mutton.
- 6—Tombstone.
- 7—Gila Monster.
- 8—Mt. Whitney.
- 9—Antelope.
- 10—Utah.
- 11—Salt River Valley.
- 12—Archeologist.
- 13—Ocotillo.
- 14—Dragoon Mountains.
- 15—Bottom of Grand Canyon.
- 16—Dry lake.
- 17—New Mexico.
- 18—Jesuits.
- 19—Southern California Desert.
- 20—The Ashfork area in Arizona.

MINES and MINING

Boulder City, Nevada . . .

The Bureau of Mines announced that it has begun a \$110,000 research project to develop a method for recovering zirconium from impure sponge metal and mill scrap. Zirconium is used in the construction of atomic furnaces. The research program is being financed by the Atomic Energy Commission and will be conducted at the bureau's Boulder City experiment station. Researchers said they will work on an electro-refining process to recover the impure sponge metal lost in the production of zirconium.—*Humboldt Star*

Washington, D. C. . . .

The government completed stockpiling on four strategic materials during the six month period ending June 30, it was announced. Office of Defense Mobilization, in a report to Congress, announced objectives for the stockpile had been reached on mercury, iridium, platinum and battery-grade manganese.—*Pioche Record*

Salt Lake City, Utah . . .

With the demand for all types of energy rapidly increasing, oil shale reserves in Utah and Colorado will be a lifesaver, opined Reese T. Taylor, chairman of the board of Union Oil Company of California. His company is in the process of building a plant in Colorado with a capacity of 4000 tons of shale a day. Although it will be a research unit it is of commercial size, Taylor said. The shale in the huge beds on Union property is averaging about 30 gallons per ton, he added.—*Vernal Express*

Goldfield, Nevada . . .

Drilling operation for water at the Jupiter Shaft were completed and employees at the Newmont mill were expected to begin operations. The well was sunk to a depth of 255 feet.—*Nevada State Journal*

Elko, Nevada . . .

Richfield Oil Company was scheduled to begin exploratory drilling in December for oil on a site between Deep Creek and Bull Run in northern Elko County, it was reported. The drilling was scheduled for a site where natural gas was discovered 30 years ago by the late George Gilmore of Tuscarora. He drilled to a depth of 700 feet. The land is owned by the Federal government with oil rights leased to George Ogilvie and Kenneth Scott, both of Elko, who have assigned their lease to Richfield.—*Nevada State Journal*

Carson City, Nevada . . .

The Nevada Legislative Commission has received for consideration a unique plan which calls upon Congress to change the 1934 Gold Act to allow the public to possess gold again. The plan, called the Beam Plan, would make it necessary for the Treasury Department to return gold coins to the gold producer after smelting and minting, and the producer would have the right to sell it on a free market as he desired. This would apply only to newly-minted gold and it could be sold at a market price to be determined by the law of supply and demand. According to supporters of the plan, its adoption would make gold mining attractive. The free market would raise the price of gold and investors would be encouraged to invest in potential gold property.—*Nevada State Journal*

Virginia City, Nevada . . .

Robinson Diamond Drilling Company has been awarded a contract by The Consolidated Virginia Mining Company to begin drilling in a promising area on the Con-Virginia claim on the Comstock Lode at Virginia City. This is the first step to reactivate the gold and silver properties. The objective of the drilling is to define gold and silver ores laterally and at depth in a virgin area on Mt. Davidson. The company contemplates open-pit operation.—*Nevada State Journal*

Vernal, Utah . . .

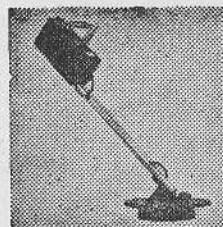
Tar sands, with outcroppings prominent in the Uintah Basin will be a source of crude oil for the western states as soon and possibly sooner than the widely publicized oil shales of Colorado, declared John E. Swearingen, executive vice president for Standard Oil of Indiana. He said the tar sands are the remains of some fossil oil field opened in the course of mountain building eons ago, permitting oil to migrate to the surface. The Uintah tar sands extend for many miles in a generally east-west direction, both north and south of Vernal. Exploration to date indicates that a billion barrels of oil rest on or near the surface, he added.—*Salt Lake Tribune*

Twentynine Palms, California . . .

Kaiser Steel Corporation officials announced the planned purchase of high-grade iron ore from the Iron Age Mine in Twentynine Palms. The ore will be used at Kaiser's Fontana steel mill. Initial production of the Iron Age is expected to be 75 tons of ore daily with an eventual output of 150 tons, mine operators I. W. McManaman and Virgil Blaser announced.—*Desert Trails*

San Juan County, Utah . . .

Gulf Oil Corporation reported discovery of what may be another new oil pool in the San Juan County segment of the Paradox Basin. Gulf's well is located approximately three miles southwest of Shell's pool discovery at Recapture Creek and 11 miles northwest of Desert Creek pool. Thus Gulf's discovery is either a separate pool or a very substantial extension of production at Recapture Creek.—*Salt Lake Tribune*



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Anaconda, Montana . . .

Anaconda Co. announced it has developed a new process for extracting alumina, principal raw material for aluminum, from low grade domestic clays, and said it will build a \$1,000,000 pilot plant at Anaconda to test the process. Since three out of every four aluminum fabricators import their bauxite, chief source of alumina, the new process would free the country from dependence on foreign sources. Although many ordinary clays in this country contain high alumina content, it is so easily extracted from Bauxite that little serious attempt has been made to process clays for aluminum content.—*Pioche Record*

Silver Bell, Arizona . . .

Ore production at the Silver Bell operation of the American Smelting and Refining Co., initiated on March 1, 1954, totaled 6,219,000 tons averaging 0.93 percent copper on July 1, 1956. Before the operation could begin, more than 15,000,000 tons of waste overlying the ore had to be removed. The concentrator at the mine is now treating a daily average of 7730 tons of ore. In addition to copper concentrates, about 1500 pounds of molybdenite concentrate per day is produced.—*Pioche Record*

Boulder City, Nevada . . .

Laboratory tests at the electro-metallurgical experiment station at Boulder City show that argon is a suitable substitute for scarcer helium in titanium manufacturing. Comparable tests with the two gases proved conclusively that argon could be used instead of helium in the reduction of titanium tetrachloride with magnesium. — *Humboldt Star*

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Washington, D. C. . . .

Interior Secretary Seaton has approved regulations designed to prevent exploitation of surface resources on public lands through the staking out of mining claims. The regulations implement a 1955 law under which unpatented mining claims located after July 23, 1955, may not be used for any purpose other than prospecting, mining or processing operations. Seaton said that under the old law persons staking out mining claims could get valuable above-ground rights to timber or sites for business, summer residence, hunting and fishing. Seaton called the new law "the most important change in the mining laws since enactment of the mineral leasing act of 1920, as well as one of the most vital conservation measures in history."—*Mining Record*

Los Angeles, California . . .

Shell Oil Co. and Standard Oil Company of California jointly announced plans to build a crude oil line from the Four Corners area to Los Angeles, a distance of 600 miles. The announcement came on the heels of a proposal by Northwest Pipeline Corporation to construct a 30,000-barrel-a-day crude and light oil products line from Four Corners to Salt Lake City. Shell said the proposed Los Angeles line would be 14 inches in diameter and with addition of more pumps could have an ultimate daily capacity of 100,000 barrels of crude and distillate. "Indications are," the joint statement said, "a new oil province has been discovered in the Four Corners Area with a probability that adequate reserves will be available to support such a pipeline project."—*Salt Lake Tribune*

Vernal, Utah . . .

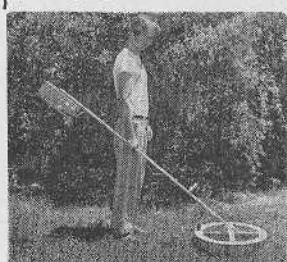
Standard Oil Company of Ohio has signed contracts that call for the multi-million dollar development of Asphalt Ridge, four miles west of Vernal. The extensive oil sand deposits are believed to contain vast quantities of petroleum. The extent of the investment depends upon the amount of petroleum that can be recovered commercially from the 15-mile-long Ridge. The company said if determination of reserves is satisfactory, part of the Ridge above ground will be mined by open-pit. The crude material will be shipped by pipeline from the Vernal mine and proposed treatment plant to oil refining centers either at Salt Lake City or Los Angeles.—*Vernal Express*

Lemhi County, Idaho . . .

A surplus of cobalt metal looms on domestic and world markets as soon as American defense stockpile needs are filled, E. B. Douglas, manager of Calera Mining Co.'s Cobalt, Lemhi County, Idaho, properties, disclosed.—*Salt Lake Tribune*

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URANIUM NEWS

Power Site Acreage Now Open for Mine Claims

Now open to mining claims are 816,472 acres of public lands in Utah which had been set aside for potential water and power development. Along with this announcement, the Department of Interior issued proposed regulations for administering the new public law which opened additional lands in 17 states and Alaska to mining claims.

"These regulations," said Interior Secretary Fred A. Seaton, "spell out the procedures for unlocking a vast area of mineral resources that have been closed to the staking of claims for many years, except in rare instances where restorations were obtained under Section 24 of the Federal Power Act, a procedure now rendered unnecessary."

Under the regulations, prospectors are required to notify BLM of mining claims made in power site withdrawal areas and to wait 60 days before starting mining operations on any placer claim.

Acreage released in other Intermountain Area states amounted to 574,210 in Idaho; 247,263 in Wyoming; and 165,794 in Nevada.—*Salt Lake Tribune*

New Ruling Allows U-Mining On Lignite Coal Grounds

New regulations allowing the entry, location and mining of uranium and other valuable source materials in public lands known to be valuable for lignite coal were announced.

The proposed regulations, which also provide for the recording of notice of such locations in the proper land office of the Bureau of Land Management, are needed to administer Public Law 357 which was enacted primarily to resolve a problem created by the discovery of uranium intermingled with lignite in South Dakota and adjoining states. The law provides for compensation at the rate of 10 cents a ton for lignite mined or stripped in the recovery of uranium or other valuable source material, certification of amounts to be made by the Geological Survey.—*Mining Record*

White Canyon Mining Co. has entered into an agreement with Western Knapp Engineering Co. of San Francisco, a firm which has completed engineering data on a proposed uranium mill in San Juan County, Utah. No formal proposal has been made as yet to the Atomic Energy Commission for construction of such a mill, White Canyon president F. C. Sitton said.—*Mining Record*

A new strike of major proportions was announced by Apex Minerals Corporation in its uranium operation near Austin. The new strike penetrates a rich body of ore as yet undetermined in size, but already known to be large and perhaps even huge. The new body is the largest yet discovered on the Apex property.—*Reese River Reveille*

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New Low Grade U-Ore Processing Method Told

Alexander Guterman, president of Shawano Development Corporation of New York, said his firm has developed a new economical process for separating valuable uranium from low grade ore. The process was developed at Shawano's separation mill in the Poison Basin west of Baggs, Wyoming.

Under the process, the uranium is separated from raw ore strip-mined from the corporation's claims through gravity and flushed into two large concrete-lined reservoirs. The uranium concentrate then is collected from the tanks after water in them has been evaporated by heat from 10,000 feet of pipe in the bottom of the reservoirs.

Guterman said the concentrate contains five times as high a proportion of uranium as the ore fed into the mill. This, he explained, brings low grade ore up to the standard acceptable to uranium smelters.

Through the new process, ore assay is improved from .04 percent of uranium to .20 percent.

The mill currently can separate about 200 tons of concentrate from 1000 tons of ore daily.—*Humboldt Star*

Allied Dye and Chemical Corporation has been awarded a contract for production of 5000 tons of "green salts" or equivalent in refined salts of uranium, it was reported. From 20 to 50 million dollars in facilities was involved in the bid-negotiations which represented the first opportunity for private enterprise to enter this phase of uranium production. The award to Allied Dye eliminates a bid by Vitro Corporation of America to construct a plant costing several millions of dollars which would refine about 40 percent of the total desired purchases of green salts by the AEC. This plant would have been located at Salt Lake City near a present uranium mill a Vitro division operates. Allied Dye will build its plant in the eastern United States.—*Salt Lake Tribune*

Directors of United Western Minerals Co. approved an agreement with Homestake Mining Co. which includes milling and mining of Homestake properties in the Ambrosia Lake area near Grants, New Mexico. The board also approved a project to erect an \$80,000 general operations headquarters building near the municipal airport south of Santa Fe.—*Grants Beacon*

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AEC Says Private Industry To Build Test Reactors

The Atomic Energy Commission, in another move designed to spur private industry participation in the nuclear field, said it is looking to private industry to build and operate general purpose test reactors to meet the growing needs of both business and the government.

To encourage private business to enter this phase of the industry, AEC said it will build new test reactors only if its need for them can not be met by business under contracts in which the government reserves part of the space available in privately-owned facilities.—*Salt Lake Tribune*

Uranium ore reserves in the Ambrosia Lake region in New Mexico controlled by Kermac Nuclear Fuels Corporation now amount to over 8,500,000 tons proven with large additional reserves indicated. At the time Kermac was formed, reserves were estimated at 5,000,000 tons. The company broke ground for a 550-foot shaft to mine uranium in the Ambrosia Lake region. The project is directly west of the Rio De Oro mine. Kermac plans to excavate a three-compartment shaft. Ore reserve at this location previously was estimated at over 500,000 tons.—*Grants Beacon*

The United States Atomic Energy Commission has signed a contract with the Gunnison Mining Company of Grand Junction, Colorado, agreeing to purchase the uranium concentrates produced at a new uranium processing mill to be erected at or near Gunnison, Colorado. Completion of the new mill is expected in November. The plant will treat uranium ores from the Gunnison district, including ores from the Los Ochos properties developed by Gunnison Mining during the past two years.—*San Juan Record*

Radiore Exploration Co. of Moab, Utah, has started the construction of a new road on Chief Mountain in the Colorado River canyon southwest of Moab. With completion of this road the company said development of two new uranium drifts will be undertaken. Radiore holds an operating lease on the 23-claim property on Chief Mountain owned by Industries and Mines, Inc., of New York.—*Dove Creek Press*



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GEMS AND MINERALS

ROCKHOUNDS PROTEST NEW ARMED FORCES' LANDGRABS

Members of the Glendale, California, Lapidary and Gem Society added their voices to the mounting criticism of armed forces' landgrabs in the West by unanimously adopting this resolution:

Whereas during the past two decades, many millions of acres of our Western Desert and Mountain lands have been con-

fiscated and removed from public use by the several branches of our Armed forces. Even now plans are under way to appropriate several million acres more; dispossessing ranchers, miners and other residents and closing these additional areas to collecting and prospecting.

Were it a military necessity to take so much land, we would offer no objection but we can see no logical reason why each branch of the Service should have half a dozen private gunnery and bombing ranges. For weeks on end these ranges are not used. It is apparent that all services could easily use a common range and still have plenty of time and space for their operations.

Therefore, we believe that the interest of our country as a whole can be served best by keeping the largest possible areas of our Desert and Mountains open to Prospectors seeking needed strategic materials, Rockhounds in pursuit of their hobby and the vast segment of our society which seeks health and diversion away from the city on week ends.

In view of these facts, We, the members of the Glendale Lapidary and Gem Society, protest this excessive and wanton removal of Desert and Mountain lands from civilian use; and we hereby instruct the Secretary to notify our various Governmental representatives of our protest.

• • •

Manganese was known from ancient times although it was not used in any practical manner. The first use of this substance was in glass making as a bleach to give glass a crystalline clearness. Varying amounts of manganese produce violet, red or dark brown glass. Amethyst gets its color from small quantities of iron and manganese. Today by far the largest use of manganese is in steel making.—*Shop Notes and News*

• • •

A new rockhound club has been organized in the San Diego, California, area, the Solar Gemsters. Charter officers are Larry White, president; Mike Wells, vice president; Norton Brooks, treasurer; and Maggie Wells, secretary.

THUMBNAIL COLLECTIONS BEST FOR NEW HOBBYISTS

The beginning collector will find it best not to start his new hobby by concentrating on a limited phase. Every collector will sooner or later fall into the groove that fits his interests, opportunities, specimen space resources and the amount of time and money he can afford to spend.

The new collector should first meet experienced collectors and see their collections. He should visit exhibitions and note the various types of materials displayed. Above all he should secure books that deal with collecting and learn about the minerals, their associations, colors, form and where they occur. By this time he will have secured some specimens. Joining or visiting a club should be the next step for here he will learn more about his new hobby and meet people who share his interests.

By this time he will have developed his preferences as to which phase of the hobby he will concentrate on.

I believe the average beginner will do best with collecting thumbnail size specimens. Most collectors will be glad to give a beginner a few duplicates and as interest and knowledge grows, a little money will go a long way in collecting these inch-square specimens.

Right from the first, the collector should properly identify his specimens and list where they were collected. With small specimens a number, preferably the Dana number, should be pasted or written directly on the specimen. The number should then be entered on a file card or in a notebook. A specimen is much more valuable for trade or sale if properly catalogued.

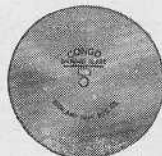
Probably the greatest point in favor of the thumbnail size is that single specimens of all known minerals could be stored in a small cabinet.

The collector should be on a constant lookout for better representatives of the specimens he has, and replace them, preferably with crystals.

Every collector will want a few larger and more spectacular specimens, but these are more expensive and take up more room. Micromounts are the third possible specialized field. Many believe that they offer the most beauty and perfection. Small crystals always are more perfect than larger ones, but, the collection of micromounts is more expensive than thumbnails.—Col. Clarence M. Jenni in the Montebello, California, Mineral and Lapidary Society's *The Braggins' Rock*

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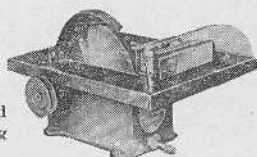


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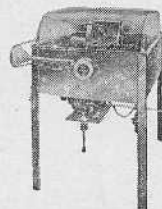
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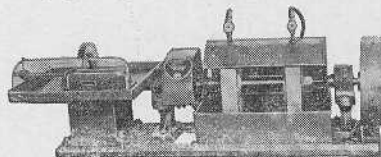
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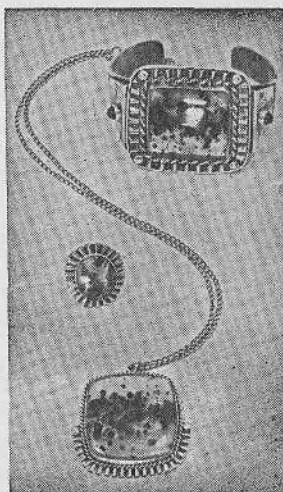
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TURQUOISE COLOR DEEPENED WITH MINERAL OIL BATH

To work turquoise, first mark out a blank on a stone with a template and then cut around it with a trim saw. Use the side of a 100 grit wheel to flatten the stone. Grinding and shaping is done on a 220 grit sanding cloth run at a medium speed. The finish sanding is done on a well worn 320 sanding cloth. Sand dry but keep the stone moving all the time. If you stop for an instant you may burn your stone, and a burned stone leaves an ugly brown splotch which only can be removed by further grinding.

A leather buff with tin oxide is best for polishing. Mix the tin oxide into a thick paste and apply it to the damp buff using medium speed. Work over the surface and keep the buff damp until the entire cabochon is covered. If you let the buff run dry and move the stone very rapidly over it you will get a brilliant polish. A chalky stone will not polish under any conditions.

Let the stone dry on the back of a stove or hot water heater for two or three days then place it in a cup of pure white mineral oil which should be placed in a warm (not hot) place. Let it stand 24 to 48 hours and your stone will take on a much deeper and more desirable color. This oil bath will hold the color a long time unless the stone is subjected to continual submersion in water or to extreme temperatures.

Turquoise has been mined in east central Arizona for over 400 years. The Castle Dome produced some very beautiful blue turquoise. That mine, now closed and overburdened with waste, is being acid leached. What gem material still remaining is lost forever to rockhounds.

A new Arizona mine called the Sleeping Beauty is producing turquoise as a sideline. It is owned and operated by the Miami Copper Company and is an open pit mine similar to the old Castle Dome. It does not produce the quality of turquoise that the Castle Dome mine did, most of it being chalky. Of course copper—not turquoise—is the basis of the mine's operation but miners pick up the latter during their lunch and rest periods. Small amounts of it reach the gem market. Mrs. J. Helvenston in the Miami, Florida, Mineral and Gem Society's *Chips and Facets*

DATES FOR FEDERATION DESERT SEMINAR TOLD

The annual Desert Seminar for field trip chairmen of California Federation gem and mineral clubs has been set for March 23 and 24, Federation Field Trip Chairman Mary Frances Berkholz announced.

Attendance at the Mojave Desert outing is limited to the field trip chairmen of each society or an appointed representative, and reservation applications will be mailed to each club.

Mrs. Berkholz said the seminar program would include a collecting trip for cutting material, campfire discussion of field trip problems, a rock swap and a chuckwagon breakfast.

Societies desiring further information should write to Mrs. Berkholz at Cal-Rock Ranch, Route 1, Box 12B-1, Valyermo, California.

Diamond, despite its extreme hardness and almost imperishable quality, is composed of carbon and if heated sufficiently will burn. It would be impossible to burn a diamond in an ordinary fire, but it can easily be done with a blow-torch.—*The Template*

PLASTIC CAPS MAKE STANDS FOR SPHERES

Save those plastic caps from cosmetic jars, lotion bottles, etc. Turned upside down they make fine pedestals for spheres. They are large enough to hold a sphere while at the same time not conspicuous.

Cut your own templates out of celluloid blotter tops or pocket calendars and use an aluminum pencil for drawing them on cabochon blanks. Acetone will erase unwanted designs on the blanks.

Try adding a few drops of liquid soap to cerium, tin, chrome or aluminum oxide

paste. It will make polishing much easier and faster as the soap holds the polishing compound to the wheel longer and makes the wheel grab the stone better.

Hold a piece of crepe rubber against your sander to clean it. A piece of an old crepe sole will do. — *Rockhound Buyers Guide*

The third annual Tucson, Arizona, Gem and Mineral Show is scheduled to take place March 9-10 at the Pima County Fair Grounds. Those desiring detailed information should write to the club at 2215 E. 7th St., Tucson.

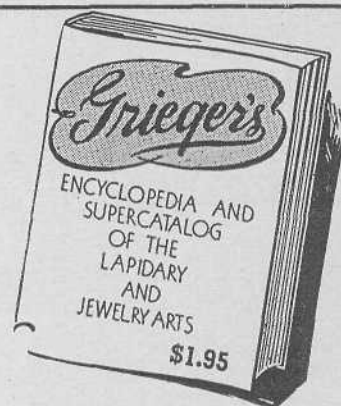
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MALACHITE CARVINGS WERE ONCE ROYAL GIFTS

Malachite is the most common and stable of the secondary ores of copper. Usually it forms fibrous crusts and masses but in its compact form was used in Russia for carving and mosaics which were prized for royal gifts. Africa produces this dense material today. It is found in large quantities in New Jersey, Pennsylvania, Wisconsin, Nevada, Arizona, Utah and New Mexico.

The Bisbee, Arizona, mines have furnished museums with many of the handsome specimens of malachite associated with azurite. Malachite has been known to man since about 4000 B.C. when the Egyptians were mining it in the area between Suez and Mt. Sinai.

Malachite has a hardness of 3.5; specific gravity 4; light to dark green; luster adamantine, silky or dull; translucent on thin edges.—Miami, Florida, Mineral and Gem Society's *Chips and Facets*

The first find of rhodonite reported from Arizona was announced recently from a small prospect near Sasabe. The material from this location exhibited so far is much weathered, but the color is good.—Mineralogical Society of Arizona's *Rockhound Record*

"QUOTES"

FROM THE GEM AND MINERAL WORLD

There are some things you cannot learn from books, and often experience is the best teacher. After spending \$15 for a tin lap for polishing, I found that just as good results could be attained with an old phonograph record.—V. L. Burton in the Evansville, Indiana, Lapidary Society's *News Letter*

We have been asked why our shows are non-competitive. We believe it holds a club together . . . each case is different and the workmanship and showmanship is outstanding. We are just as proud of our neighbor's case as we are of our own. It almost would be impossible to pick out one case and say, "This is the best in the show." We think all are the best and we are proud of every one of them.—San Francisco, California, Gem and Mineral Society's *The Mineralog*

The human brain is a wonderful mechanism. It starts working the moment you are born into this world, and never stops until you are asked to stand up and say something. — San Geronio, California, Mineral and Gem Society's *Pick 'n Shovel*

One bad thing about joining a club—you have to attend every meeting to keep from being put on a committee.—*Pick and Dop Stick*

There are two things a man should never be angry at—what he can help and what he cannot help.—*Border Braggins*

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AMATEUR GEM CUTTER

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

Some gem cutters, especially those without previous experience, often have difficulty in the lapidary treatment of labradorite. This colorful gem material is best suited for cabinet specimens, cut as a flat surface and polished. Often the play of beautiful peacock-like colors in this material is remarkable.

It is also possible to cut fine cabochons from it, but there is likely to be more waste compared to flat surfaces. Since labradorite (H-5 to 6) is comparatively soft the gem is not suitable for ring wear.

A play of colors is characteristic with certain types of labradorite, especially those from Canada. Blue and green are the predominant colors, but yellow, fire-red and pearl-gray may also be noted. This effect has been shown to be largely due to the interference of light, caused by reflection from thin lamellar inclusions of various minerals, according to Dana. These inclusions are arranged in parallel manner and in certain planes in the material.

Frequently this plane, showing the best play of colors, may be noted on a natural cleavage surface. In any case, in sawing the material for a polished surface specimen, the specimen at hand should be studied in order to locate these planes of best color. Often the sawed surface may not reveal the best color, in which case it will be necessary to reduce the surface by grinding on a horizontal lap wheel, or on the side of a grinding wheel, examining the surface at frequent intervals to note when a good exposure of color is made.

This orientation of the material is not so important in a curved cabochon surface, for here a number of planes of color will be exposed, but the general planes of color must be parallel with the flat base of the cabochon. The proper orientation of labradorite is a matter of close observation and experience. To simply take a rough mass of the material and proceed to section it, is only likely to give good results through sheer good luck. A good rule to follow is to saw or grind parallel to the largest area of natural cleavage, which is usually visible on most specimens.

In cutting labradorite, the material is a good deal like the familiar white fire opal of Australia. Every cutter who has dealt with Australian opal soon learns that the play of colors runs in layers or seams, generally parallel to one another and often close together. Hence an experienced cutter of opal will study the rough piece and from the sides note where the best color rests, and then either saw accordingly, or carefully grind until the best seam is exposed. If this type of opal is carelessly cut at right angles to these fire layers or seams, the finished stone is likely to be practically worthless. This also applies to labradorite.

As in opal, the best colored layers are not very thick, hence care must be used in grinding away just enough — not too much and not too little. Labradorite, being of the feldspar group of minerals is quite soft, it saws and grinds very easily, being easy on the saw as well as on the grinding wheels.

By far the best gem quality of labradorite comes from eastern Canada including Labrador, Greenland and some is found in Ontario and Quebec. The best grade has been discovered in eastern Labrador. In the past, Labradorite has never been plen-

tiful in the United States. Small lots would be imported from time to time by some supply firm, and when the supply was sold, no more might be available for a long time. A good many of these importations came by boat, either from Greenland or from Labrador, and usually only a ton or so at one shipment which means the price was never low.

Fortunately this material is now readily available and in excellent quality at a reasonable price. Labradorite in the rough is not very impressive appearing material, and it is only when the play of colors is properly revealed that it shows its true beauty. Since labradorite has a marked cleavage plane, none of the larger masses are free of fractures or incipient fractures, this property is inherent in the material, and not necessarily due to poor quality.

Very large slabs are not readily available, sizes in the rough will vary from small up to about 4x5 inches, usually not much larger. In sawing the material the slabs should be fairly thick to avoid possible breakage along natural cleavage lines. A slab 4x5 inches or larger should be sawed about one inch thick, where possible. Amateur gem cutters perhaps have not fully realized the possibilities of this colorful and inexpensive gem material.

* * *

In cutting cabochon gems in some materials often there are small pits, cracks and bugs that appear on the surface of the stone. These generally detract from the appearance of the polished surface.

Verah Landon of Seattle, Washington, offers the following remedy. A small amount of commercial hardwood filler is worked by the fingers into the surface of the cabochon after it has been sanded. This material will fill the blemishes mentioned above. The filler material is permitted to set for about 48 hours, and the gem polished in the usual manner.

The filler material sets very hard, will remain in the pits and other depressions on the surface of the finished gem. In dealing with material like agate and jasper varieties that are colored, the filler paste may be colored to suit the requirements. Ordinary water or oil colors, using only a small amount can be worked into the filler paste. A job of this kind, skillfully done is difficult to detect on the polished surface of the cabochon.

In dealing with dark colored moss agate like the black Montana variety, very small pits may sometimes appear on the finished polished surface. The light colored polishing powders such as tin oxide or cerium oxide often pack into these pits making removal quite difficult, and the white spots detract from the appearance. A small drop of black India ink touched on the white spotted pit, and rubbed over with a cloth will work wonders.

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C. H. Russell of Yreka, California, tells us he has difficulty in keeping gem stones from falling off the dop while shaping on the grinding wheels prior to facet cutting. Stones larger than two or three carats in size generally can be held in the fingers and worked to correct shape on the grinding wheels.

Small stones are best dopped with pure stick shellac, if the grinding is to be done with cold water applied to the grinding wheels. It is well known that ordinary dopping cement will release its grip from the gem when chilled with cold water. If the stone is ground with a stream of tepid water applied to the grinding wheels, this difficulty largely can be overcome.

In all cases the grinding wheels should run true, for no matter how well a stone may be dopped it will not take the beating of a bumpy running grinding wheel. Despite all care taken, it is inevitable that occasionally a stone will drop from the dop.

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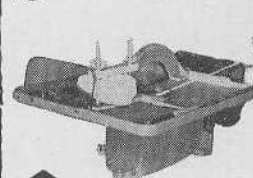
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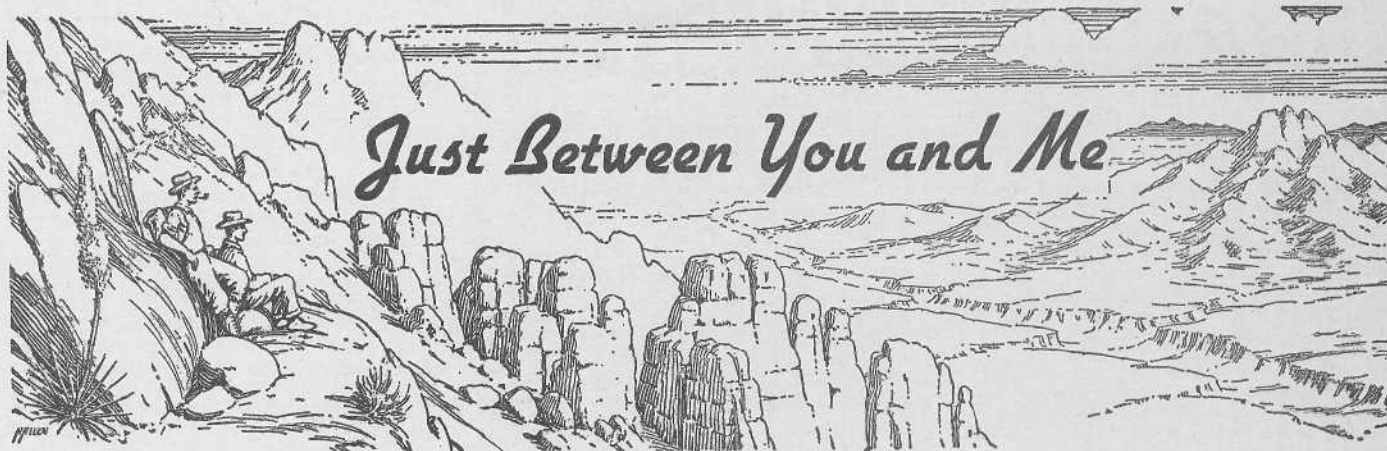


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By RANDALL HENDERSON

IF I MAY JUDGE from letters which have come to my desk recently there's a controversy brewing—an unusual type of controversy for the reason that there are no factors of commercial self-interest involved.

I am referring to the status of Rainbow Natural Bridge in Southern Utah as it will be affected by the construction of Glen Canyon dam in the Colorado River. Rainbow Bridge is a National Monument—160 acres surrounding the majestic natural arch in Bridge Canyon, a tributary of the Colorado approximately 60 miles upstream from the proposed dam.

If the Reclamation Bureau proceeds with its plan to erect a 700-foot dam, then five or six years from now when the water begins to rise in the newly formed reservoir it will back up into Bridge Canyon and eventually submerge the abutments of the Bridge. Since the arch is 309 feet high, and the water at top level would rise less than halfway up on the vertical pillars of the arch, it would be possible for boating parties on the newly formed Lake Escalante to pass directly under the Bridge.

Pressure is being brought on the Reclamation Bureau to build a protective dam downstream to prevent the storage water from reaching the base of the Bridge. That, of course, is traditional Park Service policy—to prevent artificial encroachment on national park lands. It is a proper policy, and one that *Desert Magazine* has always endorsed and supported.

But in this instance there may be good reasons why the Park Service should waive a literal enforcement of its time-honored policy.

I hope my good friends in the cause of conservation will consider the following factors before committing themselves to the pro or con of the controversy.

Favoring the building of a bulkhead dam to protect Rainbow Bridge:

1—The protection of the National Monument from unnatural encroachment is in accord with the traditional policy of the National Park Service in guarding the parks and monuments.

2—Generally there is a wide fluctuation in the storage of water in Colorado River reservoirs. When water recedes from a high level it leaves an ugly exposure of mineral deposits and flood debris.

Opposing the building of bulkhead dam at Rainbow:

1—Such a dam in the vicinity of Rainbow Bridge would create an unnatural and unsightly obstruction in Bridge Canyon, and in building such a bulkhead it is

inevitable that great scars will be left where materials are obtained and the canyon sidewalls blasted for contractor's service roads and installations.

2—The same bulkhead dam which would keep the rising waters of the lake from reaching Rainbow arch from below also would hold back the flood waters which come down Bridge Canyon Creek from its Navajo Mountain watershed above. Since summer storms in this area sometimes reach cloudburst proportions, it is inevitable that a new reservoir would be formed around the base of Rainbow Bridge, and the sand and rock carried by these flood waters gradually would fill in behind the bulkhead dam and around the Bridge.

And that is the problem in a nutshell. It appears that those of us who would like to preserve the natural beauty of the desert terrain are going to have to make a choice between the lesser of two evils.

Other possible alternatives may come to light in the days ahead, but on the basis of the information now available my personal preference would be to let the waters of the new lake seek their level without placing any man-made obstruction in Bridge Canyon.

There are no roads to Rainbow Bridge, nor are any contemplated. The monument is reached by a 14-mile hike, or horseback ride, from the old Rainbow Lodge which burned several years ago, or by a six-mile hike from the Colorado. It is a popular side-trip for river parties in Glen Canyon, and in recent years about two-thirds of those who signed the Park Service register at the base of the Bridge, have hiked up Bridge Canyon from the river. Only those hardy folks who actually have visited the Bridge will be able to visualize clearly the factors in the present controversy.

I am sure boat excursions on the newly formed lake behind Glen Canyon dam will be very popular, for this sector of Glen Canyon is a land of majestic sandstone formations in brilliant red, cream and white coloring—all sprinkled with pinyon and flowering redbud trees. It is a photographer's paradise.

At Hoover dam, according to the records in my office, the waters of Lake Mead have poured over the spillways at the top of the dam only twice in 20 years. If this holds true also at Glen Canyon dam, it will only be on rare occasions that the waters of the new lake actually will reach Rainbow Bridge. And if that time comes I can think of no more delightful experience than navigating a blue water estuary between the precipitous and colorful walls of Bridge canyon and under the massive arch that will always rise above these waters.

BOOKS of the SOUTHWEST

JAYHAWKER ESCAPE FROM DEATH VALLEY IN '49

Trapped in Death Valley in the winter of 1849-50 a wagon train of California-bound goldseekers suffered hunger, thirst and in some instances death, before finding their way through the passes and over the mountains to the coastal plain.

Journalist L. Burr Belden, who has devoted much time to the collection and interpretation of Death Valley history, has written for the Death Valley '49ers a book dealing in detail with the Jayhawker incident. *Goodbye, Death Valley!* is the fourth and latest book in the '49ers' series.

For this work Belden draws upon his personal knowledge of the area, interviews and conversations with fellow historians and descendants of the original pioneers, and from the many written accounts of the flight. He is thorough in his efforts to show how each of the party made his way through and out of the valley.

The Jayhawker story contains all the elements of a western fiction story. There is the basic desire for gold and new lands which lured these young men westward; the impetuosity of youth which causes them to turn south along a relatively unknown path rather than wait for the Sierra trail to thaw; the acceptance of a horsethief's map as a short cut to California — at first glance an incredible decision and one that the fiction writer would hesitate to use for fear the reader would find it impossible to believe; and, finally, the torture of crossing the valley, tragedy, heroism and salvation.

Outstanding are the pen and ink illustrations of William Lewis Manly, John B. Colton, Rev. and Mrs. J. W. Brier and Lorenzo Dow Stephens, by Orpha Klinker.

Published by Death Valley '49ers, Inc.; illustrated; with Jayhawker census and selected bibliography; 63 pages; paper cover; \$1.25.

• • •

David Allan and Vinson Brown have condensed their wide knowledge of rocks and minerals into a small booklet entitled *An Illustrated Guide to Common Rocks and Rock Forming Minerals*. The book is especially written — and styled — for the rockhound's hip pocket. Published by Naturegraph Co., San Martin, California; 32 pages; index; drawings; color plates on covers; 50 cents.

FIGHTING IRISHMAN AT OLD FORT YUMA

In June, 1851, Lieut. Thomas W. Sweeny, in command of a little army detachment at Fort Yuma wrote in his journal: "I am removed 250 miles from the nearest settlement, in either direction, and this weary space between us is a monotonous sandy desert, rivaling Sahara in barrenness and desolation. I expect some travelers will find my bones, and those of my company, bleaching in this wilderness at some distant period, and sapient surmises will be hazarded as to whether they are relics of Indians or whites; if whites, whether they were murdered by the red men or died of starvation."

But Lieut. Sweeny and his corporal and nine privates neither starved nor were murdered, although they lived under the threat of attack by the Yuma Indians during much of the two and one-half years the lieutenant was stationed at Yuma.

The Journal of Lt. Thomas W. Sweeny, edited by Arthur Woodward, and published recently by Westernlore Press of Los Angeles, is one of the most revealing records to come down from that period when the U.S. Army maintained a small force at Fort Yuma to protect California-bound goldseekers.

Sweeny disliked his superior officer, Major Samuel Heintzelman, who spent most of his time in San Diego, and at one time preferred charges against him. It probably was due to this fact that the Major left Sweeny at the Yuma fort with an inadequate force of men and starvation rations.

But Sweeny was not only a highly intelligent man, but he had the blood of the fighting Irish in his veins, and he accepted the hardships of his isolated station like a thoroughbred.

His journal discloses much interesting data as to the character and customs of the Yuma Indians of that period, and of their warfare with the Cocopahs of the Colorado River delta.

Edition limited to 350 copies. Half-tone illustrations, Bibliographical notes and index. 278 pp. \$7.50.

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WYATT EARP BIOGRAPHER ISSUES SHORTENED VERSION

If ever a man was born with a mission in life, that man was Wyatt Earp. His mission was law and order and he carried it out in the West of yesterday which we, in this softer age, can hardly begin to comprehend for its brutality, tenaciousness and high demand on physical courage.

Stuart N. Lake, who wrote Earp's official documental biography in 1931 following a period of intimate acquaintance with the old frontier marshal who was then in his 80s, has written a shortened version of his earlier work, primarily for children 11-14 years of age, but exciting reading for readers of any age.

Earp was fabulous. When he rode shotgun for a stage line, holdups immediately ceased; he faced a lynch mob of 500 desperate men in Tombstone and turned them back with a few words and a sawed-off shotgun; a stern order from his lips forced 25 law-hating cowboys to lay down their 50 smoking guns; when he fought bare fisted he won; with firearms he was invincible.

"The real story of the Old West can never be told," Bat Masterson once said, "unless Wyatt Earp will tell what he knows; and Wyatt will not talk."

Happily, Earp did talk to Lake and the result is the fascinating biography, *The Life and Times of Wyatt Earp*.

Published by Houghton Mifflin Company, Boston; Illustrated by John McCormack; 271 pages; \$2.50.

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GEOLOGICAL HIGHLIGHTS COVERED IN REINFELD BOOK

Fred Reinfeld's *Treasures of the Earth* is a short but thorough course in geology and its allied sciences, including mineralogy and gemmology. The author tells the fascinating story of the earth—how the mountains were made and how they are being leveled by erosion; how gem stones were created by Nature and how one best can find them today.

Rockhounds interested in getting the most out of field trips will find this book especially valuable because of its easy to understand information on geological highlights. Also of worth is the knowledge directly related to the hobby found in the last two chapters, "Valuable Rocks and Minerals" and "How to Collect Minerals and Rocks." The latter contains checklists for rock and mineral identification, volcanic terms, common minerals, the most useful ores, etc.

Published by Sterling Publishing Co., 215 East 37th Street, New York 16; many illustrations; index; 156 pages; \$2.95.

MAPS To Gem Fields • Lost Treasure Areas • Ghost Towns • For Hiking and Exploration • For Travel in the Desert Country

The maps published each month in Desert Magazine are accurate guides to the places you will want to visit. Over 400 of these maps have appeared in past issues of Desert. Many of these back issues are still available. Here is a classified list—at a special price.

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