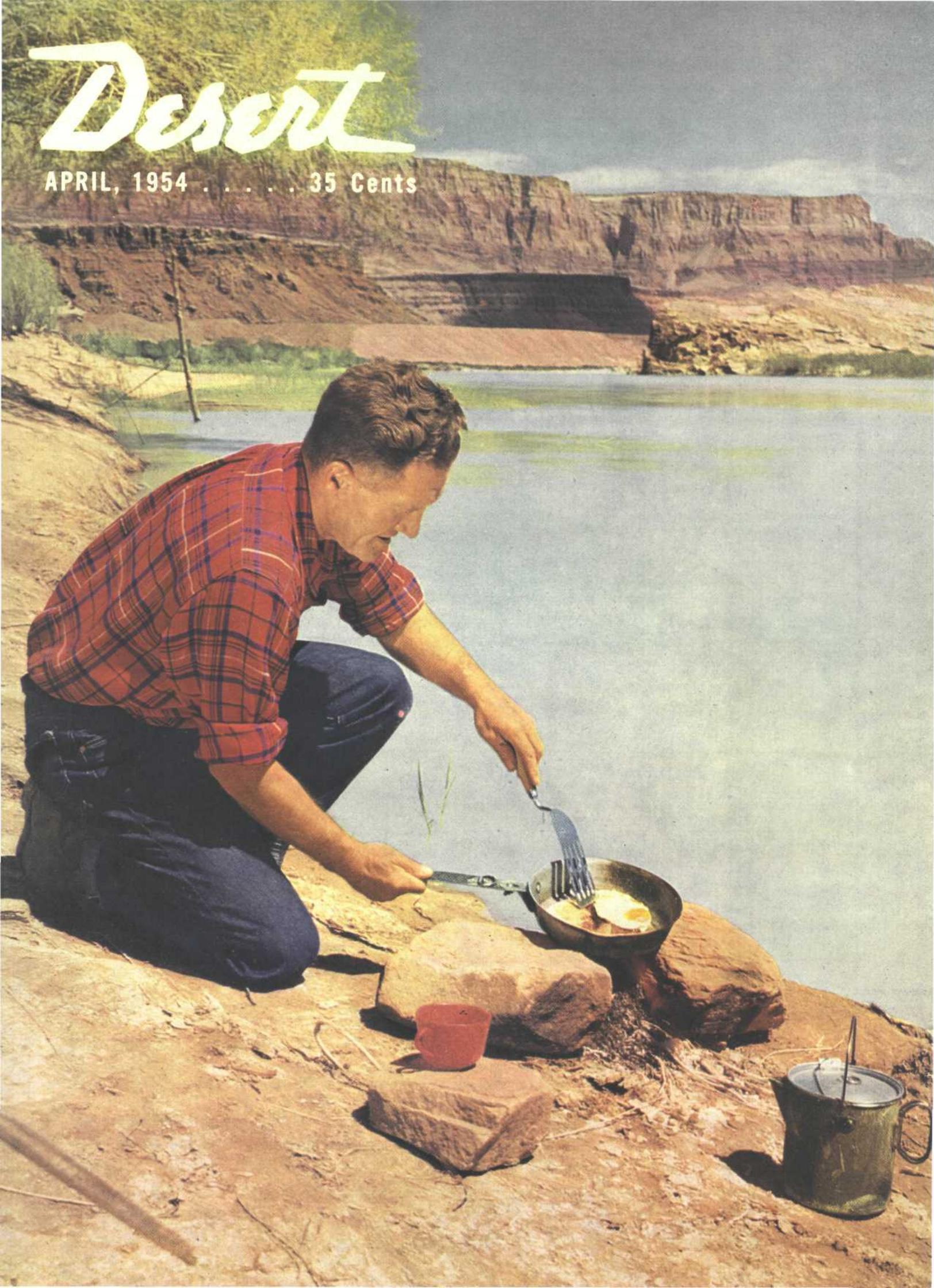


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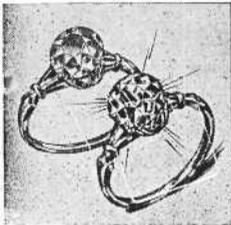
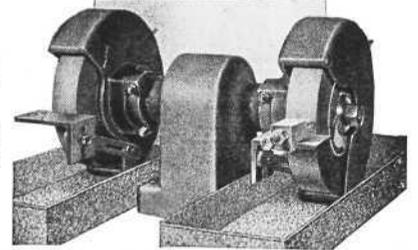
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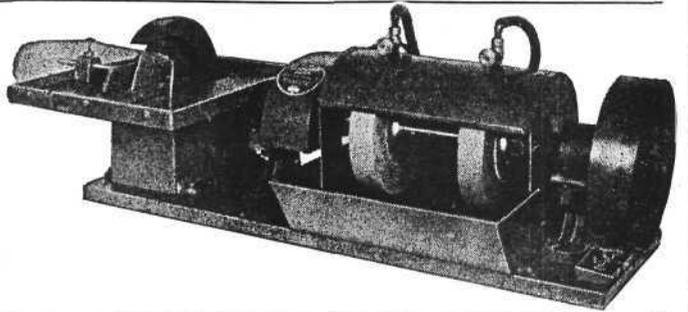
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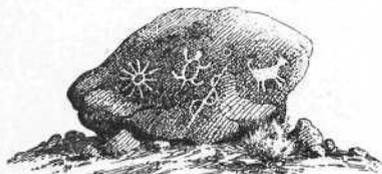
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- April 1-4—Desert Cavalcade of Imperial Valley, Calexico, California.
- April 1-30—Special Exhibit, desert paintings by Sam Hyde Harris. Southwest Museum, Highland Park, Los Angeles, California.
- April 2-4 — Fifth Annual Fiesta, Truth or Consequences, New Mexico.
- April 3—Annual Jeep Cavalcade to Calexico, from Hemet, California.
- April 3-4—Dons Club Travelcade to Grand Canyon, from Phoenix, Arizona.
- April 4—Western Saddle Club Gymkhana, Squaw Peak Arena, Phoenix, Arizona.
- April 5-9—Desert Caballeros Annual Ride, Wickenburg, Arizona.
- April 10—Play Day at White Sands National Monument, near Alamogordo, New Mexico.
- April 11—Dons Club Travelcade to Boyce Thompson Arboretum, Phoenix, Arizona.
- April 11—Desert Sun Ranchers' Rodeo, Wickenburg, Arizona.
- April 12-17 — Southern California Sierra Club Easter week trip to Havasu Canyon, Arizona.
- April 16 — Penitente Passion Play, Talpa Chapel, near Taos, New Mexico.
- April 18—Easter Sunrise Services at The Cross on the Mesa, Taos, New Mexico.
- April 18 — Easter Sunrise Services, Grand Canyon, Arizona.
- April 18—Easter Sunrise Services on Horseback, Wickenburg, Arizona.
- April 18-21—Spring corn dances in New Mexico Indian pueblos.
- April 20—Old Timers' Celebration, Deming, New Mexico.
- April 22-24 — Desert Circus, Palm Springs, California.
- April 24-25 — Desert Peaks section, Southern California Sierra Club climb of Pleasant Mountain (9750') and Cerro Gordo (9217'), California.
- April 25—Annual Spring Festival, Hi Vista, near Lancaster, California.
- April 25 — Mounted Patrol Championship Steer Roping, Clovis, New Mexico.
- April 28-May 1—Annual Las Damas Trek, Wickenburg, Arizona.



Volume 17

APRIL, 1954

Number 4

COVER	Come and Get It! JOSEF MUENCH of Santa Barbara, California, took this picture of himself cooking a camp breakfast along the Colorado River at Lees Ferry, Arizona.	
CALENDAR	April events on the desert	3
NATURE	On Desert Trails With a Naturalist: I—Desert Campfires, by EDMUND C. JAEGER	4
WILDFLOWERS	Forecast for April	6
IN MEMORY	"Burro" Schmidt, by A. B. CHRISTMAN	7
FIELD TRIP	Petrified Flotsam Along the Colorado By JAY ELLIS RANSOM	8
PRIZES	A new Desert contest: Desert Birds	11
WATER	Waterflow forecasts for Colorado River	11
LOST GOLD	Lost Wells-Fargo Gold, by JANE ATWATER	12
EXPLORATION	Trail to Keynot Summit By LOUISE TOP WERNER	14
EXPERIENCE	Life on the Desert, by LEE STROBEL	17
SCIENCE	New Source of Water for Desert Lands? By GASTON BURRIDGE	18
DESERT QUIZ	A test of your desert knowledge	20
POETRY	They Cradle Me, and other desert poems	22
PHOTOGRAPHY	Pictures of the Month	23
MINING	Current news of desert mines	24
INDIANS	Navajos I Have Known, by JOE KERLEY	25
LETTERS	Comment from Desert's readers	27
CONTEST	Prizes for Photographers	28
NEWS	From Here and There on the Desert	29
FICTION	Hard Rock Shorty of Death Valley	29
CLOSE-UPS	About those who write for Desert	34
HOBBY	Gems and Minerals	35
LAPIDARY	Amateur Gem Cutter, by LELANDE QUICK	41
COMMENT	Just Between You and Me, by the Editor	42
BOOKS	Reviews of Southwestern literature	43

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ON DESERT TRAILS WITH A NATURALIST

Summer and winter for 40 years Edmund C. Jaeger has been spending a majority of his weekends out along desert trails. With boys from the Riverside Junior College, where he taught for many years, as companions, he has sought secluded canyons and mesas where he could study the wildlings of the desert in their native habitat.

Out of this long association with the plant and animal life of the arid regions has come the intimate knowledge of natural life which made it possible for him to write such books as "Denizens of the Desert," "Denizens of the Mountains," "The California Deserts," all now out of print, "Desert Wildflowers," "Our Desert Neighbors," and numerous magazine articles and scientific papers.

Recognized today as the dean of desert writers,

Jaeger also is regarded as one of the foremost naturalists of the Southwest.

And now Edmund Jaeger is going to write regularly for Desert Magazine readers. The editors of Desert have asked him to write from his memory and from his field notes about his experiences with the animals, birds, reptiles, insects and flora of the desert country—his intimate contacts with them while in the field.

The accompanying article is the first of the series—and since his explorations are of necessity camping trips—and he loves camping—his first article this month has to do with the art of camp cooking. His food and the manner in which he prepares it on his camping trips are reduced to the minimum of simplicity. This is the way it is done:

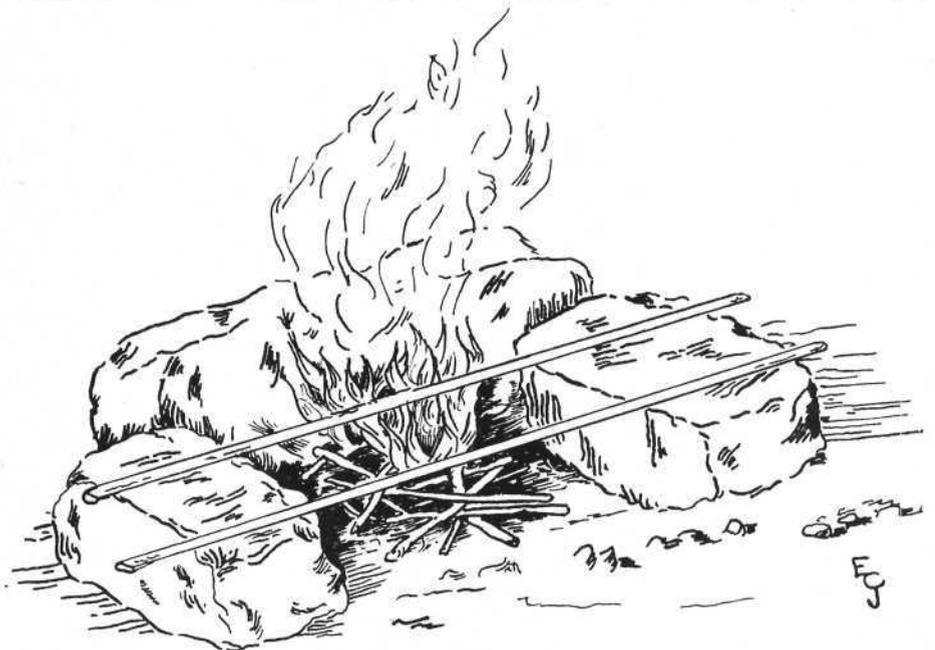
Desert Campfires

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

7O ME, and to many of my deserting friends, camping is never real camping without its wood fire and food cooked over it. There is a homeyness, a feeling of self-sufficiency and pride that comes with the building of a campfire that can never be had by the utilization of the hot blue flames of a patent portable gasoline stove. And what pleasure is derived from the sweet-smelling smoke! Every different wood that is burned emits its peculiar, often spicy redolence, that endears itself to the connoisseur of sweet scents.

A campfire is a very companionable thing, not only because of its strengthening warmth, but because of its strange beauty. The flow of flames of the fire are like the waves of the restless sea, a never ending succession of changing forms. That is why we never tire of looking into an open fire for hours on end. Why too, this ministrant to our warmth and pleasure so often stimulates the fabrication of imagery and those contemplative thoughts which lead to literary invention and interesting conversation.

What I mean by a campfire is not a big roaring blaze consuming armloads of wood but a small simply-made one set neatly between stones across which one can place the fire-irons.



No fancy gadgets are involved in the campfires on which the naturalist cooks his meals. This drawing by the author shows the simplicity of his cooking fire.

Vessels are now close to the source of heat, making cooking rapid and thorough. For some reason or other, I find it easier to cook over an open wood fire than over a gas flame. I have yet to scorch food on a campfire and I cannot say as much for my efforts at home with a gas range. Other advantages of such a small out-of-door fire are many. They are certainly easier to keep warm by, easier to supply with necessary fuel, and since they are enclosed on three sides they are very safe. There are few places so devoid of shrubby vegetation that one cannot find enough wood for the moderate sized fire. The bottoms of desert dry-lakes may be woodless but almost invariably about their borders grow some of the numerous species of saltbush (*Atriplex*), or grease-wood (*Sarcobatus*) which give

not only fine fuel but sweet smoke and the most beautiful of all flames, marvelously colored deep red, charreuse green, brilliant yellow and orange because of the possible presence of salts of strontium, sodium and other elements the plants have gathered from the mineral rich alkaline soils in which they grow. Many a campfire site in Nevada, Utah and southeastern California is sacred to me because of the beautiful colors of the saltbush and greasewood campfires I've had there.

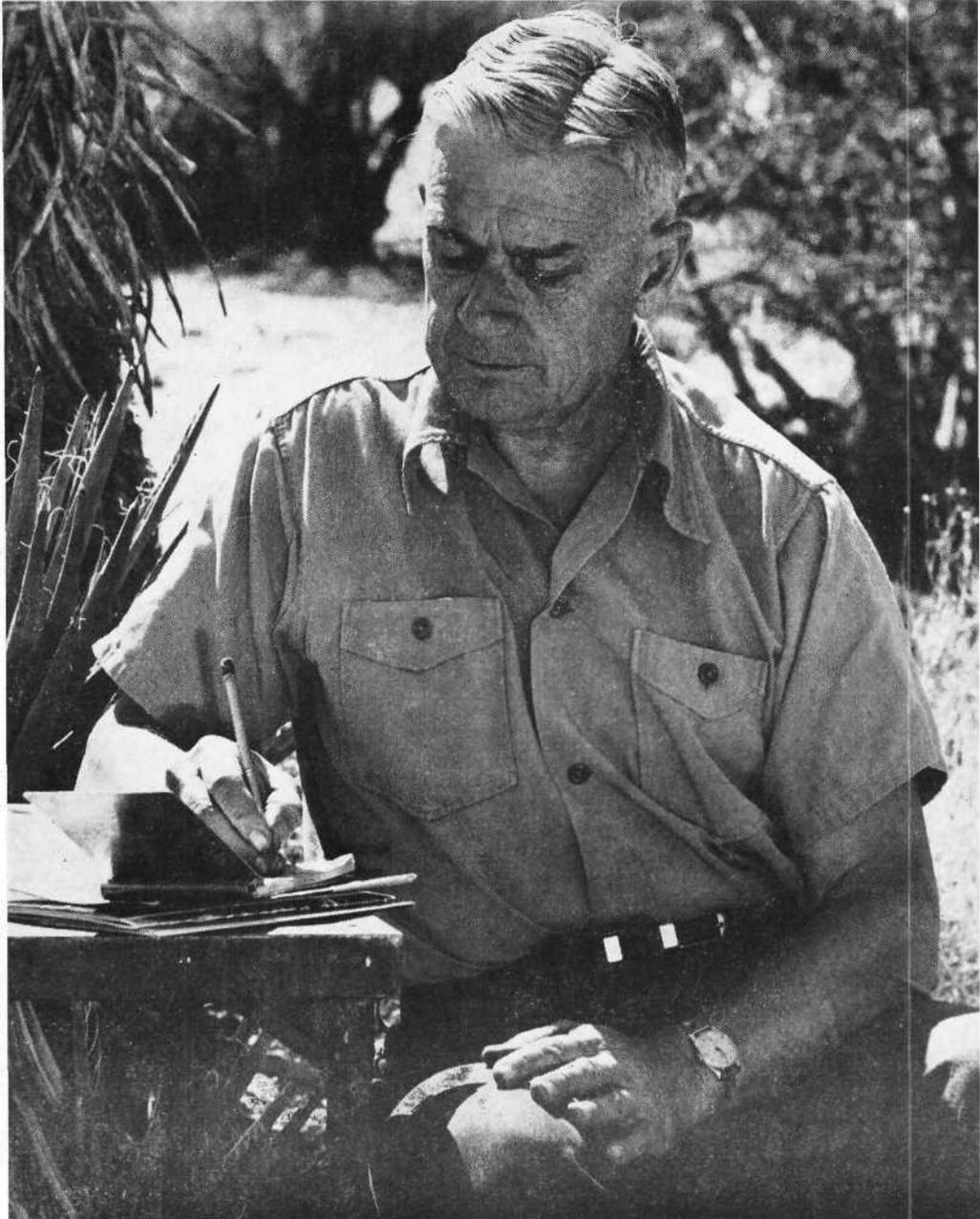
The desert's hard woods are always my first choice for fuel because they give off the least smoke, make the hottest flame and leave behind a lasting bed of coals which may yet be glowing next morning and make easy the restarting of the breakfast fire. Mesquite, catsclaw, ironwood and creosote bush are considered best, but true

sagebrush, juniper and pinyon are placed high on the list because of their sweet aromatic smoke. Yucca wood will make a good fire but the smoke is acrid and very irritating to the eyes. Woody cane-cactus (*Opuntia*) the so-called "ventilated wood," because of the many holes in the frame-work of its stem, the dry canes of ocotillo and the long woody inner ribs of the saguaro yield good wood with beautiful deep yellow flame, but it is not lasting.

My favorite fireplace consists of a large flat stone, set upright to serve as a reflector and upward guide for smoke and flame, then two small flat-topped rocks set out in front and on either side (see illustration) to serve as a resting place for my two long fire-irons laid horizontally and parallel. Upon these I rest my cooking utensils. Fireplaces so made mark the sites of hundreds of my temporary out-of-door abodes scattered in wilderness areas from Mexico to Canada and from the Pacific to the Atlantic. There are even a few in Germany and England and Wales. Maybe you will find one sometime, and recognize the place as one of my old campsites.

Yes, my long-used camp kettles and skillet are deeply encrusted with a layer of black soot. Quite often my fingers are blackened when I handle these vessels of my cook kit, but not for a world would I complain, much less trade the black pots for new and shining ones. The layers of soot have been built up from the odorous smoke of hundreds of campfires I've built through the years of a happy life of wide wandering in desert wilds. How many hundreds of gallons of appetizing food I've served from them I'd not even try to estimate.

Late last October I took two of my students on an exploring and camping trip through the marvelously picturesque deserts of Sonora in western Mexico. Better campfires we'd never had for these are arboreal or tree-deserts with an abundance of hard wood everywhere. Our fuel ranged from tree ocotillo to palo blanco, organ pipe cactus, acacia and the strange thick-leaved hote tree. At our camp 15 miles north of Guaymas, our evening was made memorable because of the visits to our campfire of numbers of small pocket mice, mere midget, neat, gray balls of fur but with extraordinarily long tails ending in a pencil of soft hairs. They had big ears, most knowing eyes and two long-footed hind legs which proved useful in sending them off on yard-long leaps when occasion arose. Their two tiny front feet served mostly as little hands with which to stuff crumbs and seeds



Edmund C. Jaeger observes the most minute details of his desert surroundings—and writes his notes in the field as he works.

into their capacious cheek pouches. To empty the midget loads of dainties picked up about our feet they repeatedly ran out beyond the light of the flames and into the dark where small holes opened to their underground store houses. Curiously, each time the little fellows reappeared it was generally from a different direction. Most exciting were those moments when moving about like tiny mechanical toys they came almost within touching range of our hands. During the whole time we talked in natural tones of voice. Long ago I learned that there is only about one thing that will put a wild mouse in flight, and that is sudden motion. Move the least bit and they leap from sight with a quickness that always amazes. Sad moments in my out-of-door life have come when I've witnessed these companionable little rodents, in their confusion of flight, jumping right into the burning embers. This has happened more than once.

Other animals which enliven the moments about my campfire are woodrats (seen nibbling off twigs to carry off to their homes in the rock crevices), small spotted skunks, once a curiosity bent coyote, and several times dainty, light-footed kit foxes—in my estimation, the most beautiful of all our desert mammals. Generally they are unafraid, taking food thrown out to them and long loitering about within the fringe of light, all the time cautious but curious about that strange thing we call fire. One very warm night on the high Mojave Desert a roving rattlesnake joined our circle, crawling through camp between our feet and the glowing coals. Yes, we moved! Here was one campfire visitor we had neither expected nor invited. This past autumn I saw several large tarantulas running toward the fire at great speed, only to back as quickly away when they felt the heat of the flames. I'd always before thought of tarantulas as big deliberately-moving spiders, per-

haps, because I'd seen them only in the daytime.

Many years ago when camping alongside the old Bucksbaum Toll Road which passed from Death Valley over the summit of the Panamint Mountains by merest chance I made a fireplace of several fine-grained, grayish-pink rocks. They gave me one of the big surprises of my life. We were seated quietly before the brightly glowing hot mountain mahogany fire when there was a sudden explosive report and flying of rock splinters that really set us back on our heels. It wasn't long before we were afraid even to stay near the place as one after another red hot rock flake flew out menacingly toward us. It was all so very interesting, exciting and mirth-provoking, yet hazardous, that cooking a meal under such conditions was almost impossible. Do you wonder that we named that rock, "dynamite rock" and our camp, "Fourth-of-July Camp"?

I found later that we'd made our fireplace out of a rock called Andesite, the name being given because of its prevalence in certain sections of the Andes Mountains. It is of volcanic origin and is often a constituent of volcanic dikes, lava beds and certain neck-like formations called plugs. I have found much of it on the plains to the east of Glamis near the Colorado River, and sometimes I take my friends there to let them have the excitement of having a "Fourth-of-July Camp" and see the dynamite rock in action.

The reason andesite is so explosive is that chemically locked up in it are molecules of water. Heat expands the water into steam and this pent-up steam, bursts forth with explosive force and loud noise.

"When breaking camp always see that you leave a little wood for the next fellow . . . for that next fellow might be you," was good advice given to me years ago by that veteran Coachella Valley prospector, Frank Coffey. It is an admonition I've since always followed. The practice has on many occasions proved to be a boon indeed. Only recently I came upon one of my old wilderness camps made some twenty years before. The night was cold, windy and dark, and wood collecting was almost impossible. The wood-pile I'd left there so long ago for the other fellow was still intact and ready to use. The wisdom of Coffey's dictum was now fully appreciated, as soon we were warming our bodies and cooking chow over a much needed and very welcome fire that otherwise could not have soon been built.

APRIL WILDFLOWERS

Blossoms Promised in Some Areas Although Outlook Generally Poor

Higher desert areas will have wildflowers this year, a few places in quantity, but in general the outlook for a colorful display is poor. No annuals are to be seen on the dunes surrounding the *Desert Magazine* pueblo in Palm Desert. Even the hardy Encelia, usually so anxious to put on its robe of yellow, is struggling to support a few buds.

Across the Santa Rosa Mountains from Coachella Valley, Borrego State Park is equally unpromising. James B. Chaffee, park supervisor, reports prospects are from poor to fair.

North of Palm Desert, on the other side of the Little San Bernardino Mountains in Joshua Tree National Monument, the picture is brighter, according to Superintendent Samuel A. King.

Basing his predictions on observations made under similar circumstances last year, King reports the following flowers might be seen on a drive through the monument in April: Golden Gilia, Fremont Phacelia, Chia, Scale Bud, Purple Mat and Desert Mallow in Hidden Valley; Woolly Marigold, large White Primrose, Small-leaved Amsonia, White Tidy Tips and Wallace Eriophyllum in Queen Valley; Lacy Phacelia, Desert Dandelion, Parish Viguiera, Harebell Phacelia and Parish Larkspur in Indian Cove; Mojave Mound Cactus, Paper Bag Bush and Desert Rock Pea at Jumbo Rocks, and Desert Gold Poppy, Desert Alyssum, Mojave Wild Parsley, Royal Desert Lupine and Checker Fiddleneck at Salton View.

From another sector of the Mojave Desert, Mary Beal of Daggett, California, is cautiously optimistic. "The young plants are making splashes of green around the Creosote bushes and between the shrubs," she reported late in February. "How they will develop depends on future rain, but at least there's a start and the warm weather will help. April should be the blooming period if they develop normally."

Mrs. Jane S. Pinheiro of Lancaster, California, is not very enthusiastic about the wildflowers in Antelope Valley this year. Two good January rains brought the seedlings up, but the warm weather and lack of follow-up moisture have discouraged the plants. Many Dwarf Lupine, some other Lupine, some Poppies and Bird's Eye Gilia were up by March 1, but already some of the plants were withering.

In Death Valley, the annuals were struggling. "Some of the hardest plants will mature," reported E. E. Ogston, chief ranger of Death Valley National Monument, "but at best this season's display will be mediocre." *Geraea canescens*, Desert Gold or Desert Sunflower, was the most conspicuous species.

Bad news again this month from A. T. Bicknell, superintendent of Casa Grande National Monument at Coolidge, Arizona. Archeologist Fred Peck reported the January rains were too late to save the wildflower season.

In the Tucson area prospects were not good, although some flowers are promised. Some good rains occurred the latter part of January, but they were followed by warm, dry weather. Superintendent John G. Lewis of Saguaro National Monument believes that the warm weather will speed development of what plants there are, and that the blooming season will be early. From indications in February, he predicted that Penstemon would be in flower by early March, Brittlebush and Filaree by the middle of March and Paper Daisy by the end of March.

April wildflower prospects in the Lake Mead National Recreation Area are from fair to good, according to Park Naturalist Russell K. Grater. "There should be a good representative flower display unless heat hits the desert prematurely," he reported February 23. "The Yuccas and cacti look good and show healthy new growth. Annuals — Desert Marigold, Desert Mallow, Senna, Brittlebush, Lupine, Desert Dandelion, Desert Chicory, Sundrop and Phacelia—all show considerable promise."

From Julian M. King of Apache Junction, Arizona, came one of the month's most cheering reports. "Yesterday Mrs. King and I took a long horseback ride in the hills sprawling at the foot of the Superstition Mountains," he wrote February 26. "All along the southern slopes the Ocotillo were blooming with enthusiasm — as though to mock the pessimistic predictions we humans earlier had made. We saw a few Poppies, some Lupine and many cactus buds. It still is unusually dry, and I can see no basis upon which to predict a really fine showing of wildflowers this spring, but yesterday's ride assured us the desert will produce much beauty in March and April."

IN MEMORY

"Burro" Schmidt

... A man who set a purpose in life and did not rest until he had reached his goal.

By A. B. CHRISTMAN

ONE OF THE most unusual memorial services on the Mojave Desert was held January 31 for one of its most unusual residents, William Henry "Burro" Schmidt.

Schmidt was a strong-willed man who had but two major goals in life: to dig a tunnel through a mountain and to live to be 84 years old. He accomplished his first goal after 32 years of hard labor. The second he missed by one year and three days when he died last January 27.

Schmidt started his tunnel through Black Mountain near Randsburg, California, when he was 36 years old. Working with only the crudest mining tools, he holed through the half-mile bore in 1938, at the age of 68. From the time he conceived the idea of a tunnel, he had no other purpose in life. His persistence was considered foolhardy by many; nevertheless, it was admired. Here was a man who had set a goal and who had accomplished it.

Schmidt came to the Mojave's El Paso Mountain country around 1900 to seek a cure from the tuberculosis



Burro Schmidt in front of his old cabin near the tunnel. The cabin, unused by Schmidt in recent years, has been turned into a small desert museum by Mike Lee, who took this photo.

which had claimed the lives of his three brothers and sisters at their home in Rhode Island. He had some claims on the northern slopes of the El Pasos. The road to the smelter was on the south side. Rather than build a 12-mile access road over Black Mountain, he elected to tunnel through.

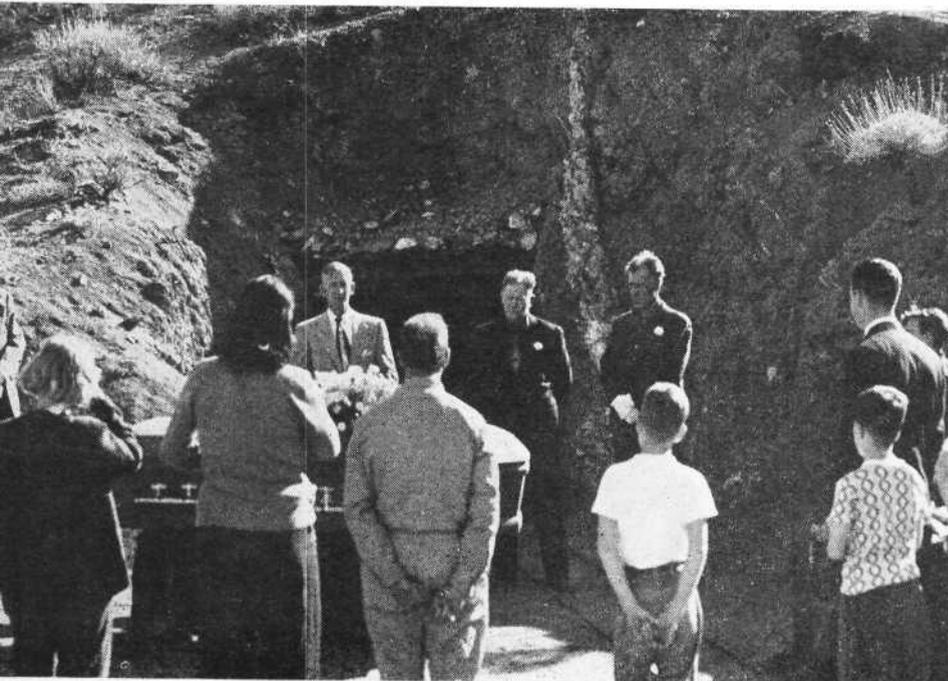
He worked at odd jobs during the summer months to make enough money to spend his winters on the tunnel. By selling one of his claims

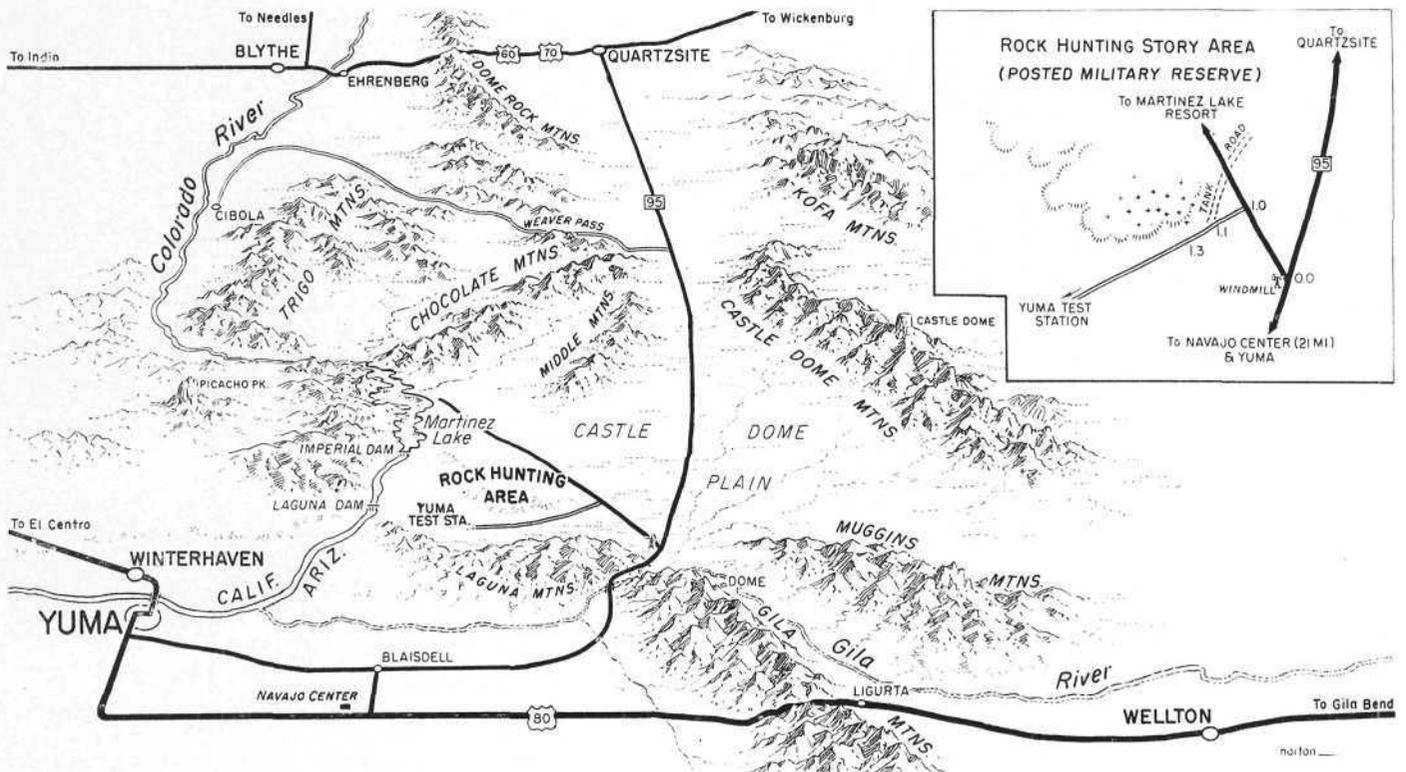
in 1932 he was able to afford six years of full-time work on his project.

After the tunnel was finished, Burro is said to have taken out about 20 tons of ore through it. At \$60 a ton, he therefore carried about \$1200 worth of mineral through the mountain to the smelter on the south side. It is a conservative estimate that he put in \$40,000 worth of work on the tunnel during 32 years of labor. No ore was taken out of the tunnel itself.

The memorial service was held at the tunnel entrance. Following the hearse up the winding road of Last Chance Canyon, old friends and fellow prospectors gathered at the foot of Black Mountain to pay their last respects to strong-willed Burro Schmidt, a man who set a purpose and didn't rest until he had accomplished it.

Johannesburg Justice of the Peace James B. Nosser, directly behind casket, presided over memorial services for Burro Schmidt, held January 31 at the entrance to the tunnel he built through Black Mountain. At extreme left facing camera is early prospector Pete Osdick, Schmidt's friend for 50 years. On Nosser's left are Mike Lee, Schmidt's partner for the past two years, and Walter Bickel, who cared for him during his last illness. Photo by author.





Petrified Flotsam Along the Colorado

Trees from mountain forests, palm root, ironwood, assorted twigs, burls and branches—the flotsam carried ages ago by the Colorado River was interesting and varied. When the river changed its course much of this drift material was deposited on what is now the Castle Dome Plain in Southwestern Arizona, where it gradually succumbed to petrification. Here is the story of a marvelously diversified rock-hunting area which yields various types of petrified wood and palm root, agate, jasper and odd-shaped sandspike novelties.

By JAY ELLIS RANSOM

Photos by the Author
Map by Norton Allen

IT WAS late afternoon. The sun settled comfortably over California's Picacho Mountains, throwing long slanting rays of gold across the Colorado River toward the towering Castle Dome range in Southern Arizona. Dad and I, hurrying along Arizona State Highway 95 to a new mineral field just north of Yuma Test Station, hoped to reach our destination in time for a quick half-hour hunting before dark.

We had heard about the field from Joseph Baker, whom we had visited a few miles back at his trading post on U. S. Highway 80, 7½ miles east of Yuma. Baker calls his post "Na-

vajo Center." The misnomer — the "center" is far from Navajoland—he explains by the fact that his stocks feature Navajo wares.

Joseph Baker is all rockhound. Tall, sandy haired and spectacled, he knows minerals first hand, from gemstones to iron ore, and he is a walking geography of field trip sites to which he'll gladly direct fellow rockhounds. With his carpenter's pencil—he's been building his post himself—he will jot down an accurate map showing where to find good specimen rocks from the Kofas to the Picachos.

"There is excellent material throughout this country," he told us, but

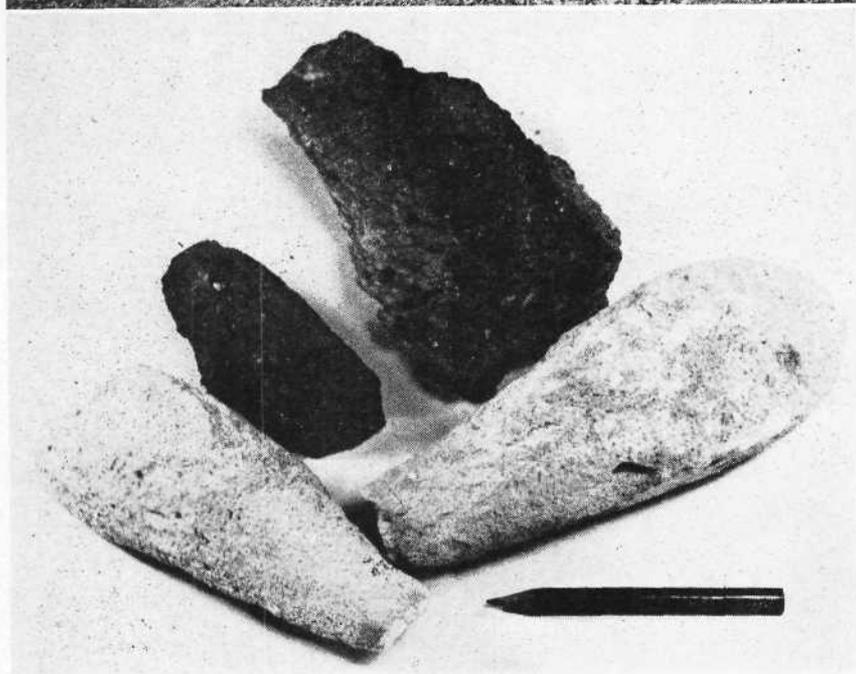
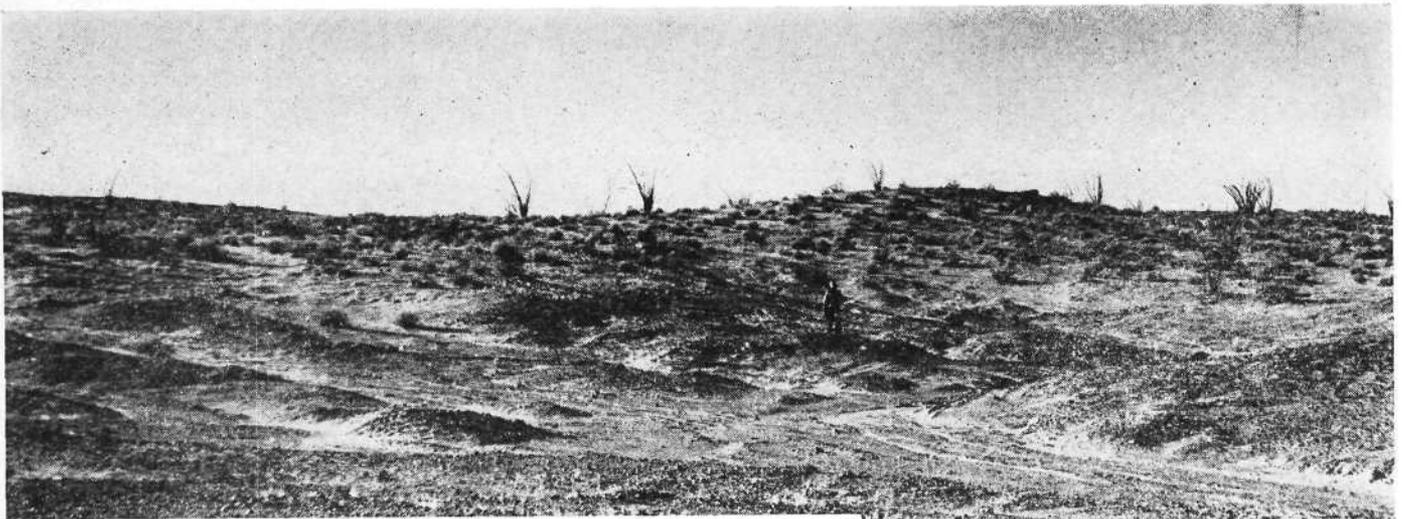
added a word of caution: "All this area between Highway 95 and the Colorado River, from Yuma Test Station 15 miles north of here for nearly 40 miles is a posted military reserve." He sketched the boundaries of the artillery range and the tank proving grounds.

"The Yuma Test Station asks that rockhounds get hunting permission before planning a trip by writing to the Provost Marshall at the station. There are many areas which are safe to visit. However, under no circumstances should anyone go east of Highway 95 in the vicinity of the Test Station, for this is the principal range, and firing is often scheduled every day of the week, including many Sundays."

My road map indicated a petrified forest approximately 25 miles north of Yuma, several miles up a side road west of Highway 95. I asked Baker about it.

"The area for petrified ironwood, palm root, jasper and agate is very large," he replied. His pencil described a half-circle above Laguna. "Right about here, a crescent of sand hills are loaded with rock, including sandspikes of many odd and peculiar shapes. Actually there's fine hunting from one mile south of the Test Station to about ten miles north in an area extending from Highway 95 to the Colorado River."

Baker showed us around his trading center, calling our attention to piles of petrified wood he had collected. Later,



Above—Sand hills of the Martinez Lake gem field in Southern Arizona.

Below—Martinez Lake specimens: top, petrified palm root; beneath it to the left, jasper; in the foreground, two typical sandspikes.

from inside his adobe home he brought us samples of the wood he had sawed slash-grained and polished. Particularly beautiful were the slabs of green wood with knurls and knots clearly showing.

"It's an unusually hard rock," Joe told us, "and the larger pieces ring like a bell when struck." From a back yard post he had hung a sizeable piece of dark petrified wood, and he demonstrated by striking it sharply with another piece of rock, producing a clear bell-like tone.

"Just like calling in the hands to dinner," he grinned.

Saying goodbye to our host and thanking him for his detailed directions, we headed north, Dad directing my driving from Baker's penciled map. Beyond the low pass which separates the Laguna Mountains from the adjacent Gila Range, we flushed a leggy jackrabbit that sprang into full stride at our approach and bounded off across the desert.

Although it doesn't show on the regular maps, 21 miles north of Navajo Center (or 19 miles north of Blaisdell) a windmill, surrounded by corals, marks the turnoff of a side road which strikes northwest to the fishing resort of Martinez Lake. Following Joe Baker's directions, we turned onto it, descending into the broad desolate expanse of the Castle Dome Plain. Dad looked back at the windmill, gaunt against the deepening blue of the evening sky. It stood where once a highway camp had operated for crews cutting the route through the raw desert between the Colorado River and the Kofa National Wildlife Range to the east.

On our left, or west, we marked the low roofs of the Yuma Test Station. To our right were the Castle Dome Mountains, their ragged domes and cores softened by the vanishing sun, which touched their crests with gold and spilled mauve shadows down the dry washes. Although the petrified

forest showing on our highway map lay several miles farther, we followed the road exactly one mile north of the windmill.

At this point a dirt road angled westward toward the Test Station. Although sandy, its ruts had been solidly packed by heavy military tanks. This was posted area, but we turned onto the tank road, proceeding another 0.2 miles. On our right, or north, extending in a broad low crescent, rose gullied hills, scoured by wind and gracefully decorated here and there with a scarlet-tipped ocotillo in full bloom.

The surface of the desert here is utterly barren, devoid of any vegetation save greasewood and an occasional ocotillo. Tumbleweed and sand burrs added their presence to the sheltered washes.

Almost as soon as we got out of the car, we found our first specimens. Stooping over alongside the tank tread marks, my father picked up a fine



Joseph W. Baker with a 100-pound petrified ironwood log in front of the adobe home he built for himself at his trading post east of Yuma on Highway 80.

piece of yellow jasper. Then, while I was getting out my camera, he almost tripped over a 10-pound sandspike nearby.

Still with some sunlight left, we set out northwestward toward the low hills a quarter mile from the road. Everywhere scattered over the raw surface of the desert were sandspikes, from tiny finger lengths to oversize specimens looking for all the world like petrified Indian clubs.

Even more prolific were big and little pieces of petrified ironwood. This wood is sought by many rock collectors for its deep red-brown color and the fine, beautiful polish it takes when sawed slash-grain. I remembered the slabs that Joseph Baker had showed us. This wood comes in every conceivable shape. Most of it is knotty and twisted like living juniper. It lay everywhere, eroding out of the sand hills and scattered by cloudbursts down to the flats.

Baker had given us his theory of how the several varieties of wood had become concentrated in this extensive area. "Most of this wood, except the palm root perhaps, was brought here from distant mountains by the ancient Colorado River during its flood stages,"

he had guessed. "You can look out over the whole area from the rim of the sand hills and just about tell where that ancient stream had meandered. In flood it could move enormous boulders as well as broken chunks of petrified trees. Very likely some of the wood decayed and petrified where it grew before the river got it. Most of it must have come in as drift and been silicified after the river dumped it in back eddies."

Hunting rock specimens in this field is easier than in any collecting area I've ever visited. There is nothing to hinder the prospector—no overburden of soil, for the scouring wind has already removed it; no covering of vegetation, for the desert is too dry and discouraging for any but the hardiest plants to survive. We could see specimens clearly outlined by the setting sun at extraordinary distances, the worthwhile material easily distinguishable from the native rocks, black with desert varnish, which are mostly malapai washed down from the mountains.

Following parallel ridges we climbed the hills, arriving on an eroded mesa swept clean by the wind. About six miles to the west we caught the gleam of sunlight on the Colorado River. A broad paved airstrip showed where the military has based planes. The sunlight leaped from the corrugated hangars as from a rippling stream. Far to the north Martinez Lake appeared above Imperial Dam.

Beyond the rise we had climbed, the desert lay level as far north as we could see—about 20 miles. All of it was once the flood plain of the great river and all of it, according to Joseph Baker, is rich hunting ground for wood, jasper, agate, palm root, and several other varieties of gem quality mineral.

The last evening light was fading as we regretfully turned back and descended toward the road by a steep-sided wash that bore southwest.

Here we found an abundance of petrified palm root in chunks ranging from fist size to ten pounds or more. My father broke open a specimen, finding it well grained, the cells of the ancient lily stem perfectly replaced by silica. "Palm root," Baker had told us, "is found along the shore of the ancient Gulf of California that at one time inundated much of this same area. It is especially frequent over on the California side around Ogilby. There must have been some overlapping of sources in these Martinez Lake sand hills."

On our way back to the car, we picked up some nice yellow wood and several interesting pieces of green

wood. The latter were small and in the nature of float, and we wished there were time to trace it back into the hills.

At the car, we checked all the wood specimens for radioactivity with a Geiger counter but got no results. Looking back over the irregular contours of the terrain, we wondered aloud at the way every wash and slope was littered with different kinds of petrified wood. It was obvious that several cycles of drift deposition and erosion had taken place by which so much material had become buried in those barren dunes.

No one knows for certain what causes petrification; no one has yet been able to duplicate the process in the laboratory. Several theories have been offered to account for silicification, and "petrified wood" is the general term applied to all forms of replaced wood, regardless of the agent acting on the cellular tissues. Joseph Baker is of the opinion that most of this wood was originally petrified in the far distant mountains of its origin, and he may be correct. However, in noting that none of the pieces we picked up were water worn but were sharply angular with annular rings and knots unusually clearly defined, I deduced another plausible origin.

Because of several varieties of wood appearing in these sand hills, it seems safe to presume that most of it came to the area originally as floating driftwood concentrated along back eddies of the ancient Colorado River or, as in the case of palm root, by a prevailing westerly wind along the eastern shore of the prehistoric Gulf of California. This would explain the intermingling of different kinds of petrified wood, as well as the absence of limbs or logs or any standing stumps of ancient trees. All of it is broken as if worked over by a gigantic rock crusher.

Judging from the types of wood we picked up, the trees seem to have thrived at higher elevations, away from the probably swampy, unsavory, salt-impregnated flats along the ancient shore line. Whatever the source of the wood, it is certain that percolating waters heavily charged with silica and working through long periods of time replaced the original wood cells.

Silicification occurs from both surface and magmatic waters; the major problem is to determine which type of water was the principal agent. As we drove on up highway 95 north between the castellated escarpment of the Castle Dome Mountains and the deeply eroded core of the Chocolates on the west, I was impressed by the obvious volcanism which had occurred

Desert Birds

How to attract them to your home

Prize Contest Announcement

What experience have you had with desert birds? Have you found a way to attract them to your home for food or water? Or for nesting?

Actually the desert country is the homeland for many species of birds. Some of them are wildings of canyons, others make their homes in the cactus. Some prefer the mountains and others the desert low lands. The naturalists in Death Valley Monument, which includes the mountain ranges as well as the floor of the valley, have a check list of 179 different species of birds seen in that area. Some of them are migrants, others are occasional visitors, but scores of them spend all or a considerable part of the year within the Monument. Some of the species prefer the desert wilderness—others build their nests in the farmlands and towns. Some, like the road-runner, appear to be equally at home in the cultivated districts and in the arid back country.

If you are interested in the birdlife of the desert, and have been successful in attracting them to your home by providing feed or water or nesting facilities, *Desert Magazine* would like to have you write about your experiences for the benefit of other desert people.

This is a prize contest with a \$25.00 award to the first and a \$15 award to the second place winner. In addition to the awards for manuscripts of from 1200 to 1500 words, \$5.00 will be paid for each acceptable picture sent with your story.

Entrants in this contest may reside anywhere, but the stories must be based on experience with birds in the desert area—the states of Arizona, New Mexico, Nevada, Utah or the desert sector of California. Also, stories must be about the wild birds of the desert region—not about imported or captive birds.

The contest will close May 20. Entries should be typewritten, double-spaced, on one side of the paper and pictures should be 5x7 or larger in black and white, well wrapped for protection in the mails. Winning stories will be published in *Desert Magazine*. Unsuccessful manuscripts and pictures will be returned if return postage is enclosed.

Address entries to Bird Contest Editor, *Desert Magazine*, Palm Desert, California.

in ages past. Out of deeply buried magmas had risen the granite batholiths of the Castle Dome and Kofa ranges, and from vast faults had spewed forth the raw lavas and magmas of the Chocolate and Dome Rock mountains, now so eroded away that only the central cores are left above the desert's surface.

I would guess that magmatic waters played a prominent role in converting this large area of mixed woods into quartz-hard rock. For one thing, surface waters carry too little silica in solution and operate along too restricted zones, like stream beds, to have silicified such enormous quantities of wood found in the region described. Magmatic waters, on the other hand, are often heavily charged with silica, strongly acid in reaction, and are capable of attacking and digesting the wood substance and replacing it with the silica held in solution. In either case, here in the sand

hills above the Colorado River petrification has been extensive and non-selective.

In addition to petrified wood, we had filled our specimen sacks with some nice jasper and with one- and two-ounce pieces of agate which we'd found in several colors. These specimens were rough edged, not water-worn pebbles, and could not therefore have been transported any great distance.

Stars were appearing when we drew abreast of Weaver Pass which separates the Chocolate Range from the Dome Rock Mountains. Baker had included this area in his sketch as well as sites along the road to Cibola.

We were sure that this, too, was rich mineral country. Time for the present forced us to pass it by—but as we drove on homeward, we already were planning a return trip to this rockhound paradise on an ancient river bed.

Below Normal Spring Run-Off

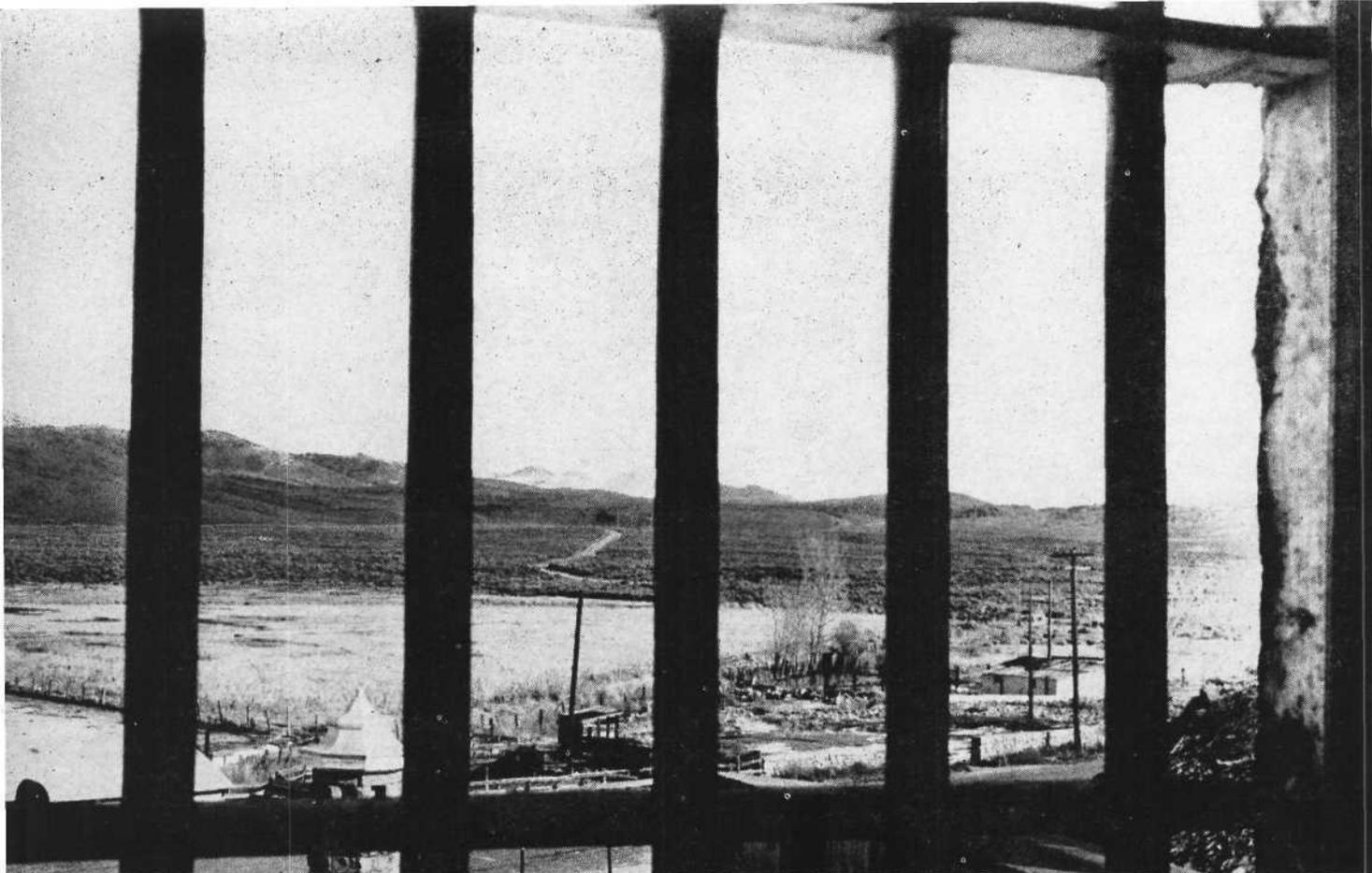
Despite heavy snows in many local areas of the Colorado River watershed, the forecast for the seasonal runoff this season, as issued by the U. S. Weather Bureau February 1, indicates less than a normal discharge of water this year.

The forecast of the Bureau is as follows:

"Colorado River above Cisco: The current water supply outlook for the area is much less favorable than that of a month ago. The light January precipitation necessitated decreases from last month's forecasts of from 4 percent to 16 percent—averaging about 5 percent lower for the area above Cameo and about 12 percent lower for the main stem of the Gunnison and for the Dolores and Uncompahgre Rivers. Precipitation for the balance of the season must equal the upper quartile values in order for normal runoff to be realized.

"Green River Basin: Forecasts for streams in Utah and Wyoming draining the Uinta Mountains are from 6 percent to 12 percent higher than those of a month ago. For the lower Utah tributaries to the Green only slight increases may be noted in this month's forecasts. Forecasts for the Colorado and upper Wyoming tributaries are only little changed or slightly lower. The Duchesne Basin in Utah may expect approximately 70 percent of average flow if precipitation for the balance of the season is near normal. The outlook for the Colorado tributaries is somewhat more promising. For the extreme upper Green Basin in Wyoming the outlook ranges from the 54 percent of average flow indicated for the Pine Creek at Pinedale to 76 percent of average flow for the Green River at Warren Bridge.

"San Juan River Basin: As a result of the below-normal precipitation during January, the current outlook is somewhat less promising than that of a month ago. Forecasts for the tributaries draining the San Juan Mountains are for flows ranging from 80 percent of average in the western portion to 92 percent of average for the Navajo River at Edith on the eastern extremity of the basin. For the main stream, near 80 percent of average flow is in prospect. Upper quartile precipitation for the rest of the season would be necessary for the water year run-off to equal the 1942-1951 average."



For eight years the Mexican could look through these prison bars and see the exact spot where he and three fellow stage robbers had buried the Wells-Fargo bullion. The road where the hold-up occurred can be seen winding its way across the desert toward Empire City.

Along the Prison Road . . .

Lost Wells-Fargo Gold

By JANE ATWATER
Photos by Adrian Atwater

SOMETIME between the years 1870 and 1893, a Wells-Fargo express stage was making its regular run from Virginia City, Nevada, to the state capital, Carson City, where a branch of the United States Mint was in operation. The trail it followed was one etched across the desert by wheels of emigrant wagons, traders and freighters. Deeply rutted, filled with rocks and potholes and covered with thick alkali dust, it was the only route between the two towns.

The regular driver was accompanied by an express messenger, for this was a special trip. The strongbox that lay on the seat between the two men held more than three hundred pounds of gold bullion, valued at about \$60,000 and destined for the mint. Both men were alert and watchful. The driver handled the six horses skillfully over the rough road, and the guard, his rifle resting across his knees, kept a sharp eye out for Indians and bandits.

Stage robbery in Nevada in the late 1800s was a recognized, and by many approved, occupation. The Wells-Fargo Company controlled all the express business in the territory with undisputed firmness. So high were their tariffs that in the opinion of some of the miners their operations themselves fell just short of highway robbery. To many, a stage robbery was merely a case of robbers stealing from thieves.

Crossing the Carson River, the stage with its precious cargo left old Empire City behind, and off a few miles to the west the driver and guard could see their destination. The guard relaxed his long vigil and settled back to make caustic comments about the proficiency of the driver and about the stage that rocked and rattled from pothole to pothole. Having relieved his mind of the tension of the trip, he began to set in motion plans for that evening when their jobs were completed and

From his cell in Nevada State Prison at Carson City, the old Mexican could see the spot where he and his three partners in crime had buried the Wells-Fargo strongbox with its \$60,000 loot. Later pardoned, he never retrieved the stage coach gold, nor did he ever divulge its secret burial place. Here is another intriguing story for the lost treasure hunter.

they were free to search out the entertainments of the town. The bright lights of the dance-halls, saloons, and theaters beckoned gaily in the minds of the two men.

While they were thus happily preoccupied, four armed men sprang out from behind the tall sage brush. Brakes screeched as the stage came to a sudden, jolting stop. One man stepped forward and seized the bridles of the lead team, while another held at gun point the helpless driver and guard. The two other bandits lifted the heavy strongbox from the seat to the ground. Then the two frightened men were motioned on their way, unharmed. They didn't need second urging.

Soon they were in Carson City, excitedly pouring out the news of the hold-up to a rapidly gathering crowd. A posse was quickly assembled and galloped out across the desert to the

place where the robbery had happened. The trail of the bandits, who were on foot, was picked up immediately and off rushed the posse in hot pursuit. They soon sighted the escaping men and a pitched battle ensued. Three of the hold-up men went down before a rain of bullets. The fourth, a Mexican, was captured alive and was carried back to Carson City.

It was impossible for four men on foot to carry three hundred pounds of gold bullion very far. Before the posse had caught up with them, they had buried their treasure, planning to return for it later when the hue and cry of the robbery had faded. No amount of threats, bribes or other means of persuasion could make the one remaining hold-up man tell where the gold was buried.

The Mexican was given a quick trial in the court at Carson City and was sentenced to 20 years in the Nevada State Prison. The records of the prison in those days were very sketchy affairs, written completely in long-hand. They listed only the name, type of crime, the possessions on the prisoner at the time of his arrest and any identifying marks. One robbery by a Mexican in Ormsby County (the location of the crime) in the year 1885 was recorded, but the lack of detail makes it impossible to say whether this was the same crime.

The prisoner languished for years while the Wells-Fargo Company sent representative after representative to interview him in the hope that he might tell where the gold was buried. The prison officials tried their own methods of persuasion to get the information but they, too, failed.

After eight years of his sentence had been served, the old Mexican contracted tuberculosis. A sympathetic governor, at the urging of the Wells-Fargo Company, gave him a complete pardon. The Wells-Fargo agents reasoned that if the old fellow were released he might inadvertently lead them to the place where the treasure was buried. Detectives were assigned to watch his movements at a discreet distance. To everybody's disappointment, the ex-convict showed no interest whatsoever in returning to retrieve the gold.

Instead, he became a pitiful sight on the streets of Carson City. He was emaciated almost to the point of helplessness. At last a kindly old Dutchman offered him a job cleaning up his butcher shop, and a bedroom in his own home.

With a good bed to sleep in and three meals a day, the old man partially regained his health. The kindness and thoughtfulness of the old Dutch-

man and his son gradually broke down the reserve of the ailing ex-convict. His confidence in them grew to such proportions that he delighted in entertaining them with wild stories of many robberies in which he had had a part. He loved to repeat each detail in the preparation for the hold-up that resulted in his arrest. Once, filled with the sound of his own voice, he nearly divulged his precious secret. He told his benefactors that while he was in prison he could look out across the desert from the window in his cell and see the place where they had buried the gold. Never, though, did he reveal its hiding place.

The old butcher and his son found themselves more and more intrigued. Access to sudden wealth lay right there under their own roof! They begged and pleaded with the old man to let them in on his secret. They offered so many inducements that finally the Mexican's last resistance broke down and he set a special date to take the butcher and his son out to dig up the gold.

Preparations were made, and all was in readiness when that special day arrived. Three horses stood saddled in the early hours of dawn. The two men waited in nervous excitement for the old Mexican to put in his appearance.

The old man came slowly from the house, walked up to his horse and put

one foot in the stirrup. Just as he was about to pull himself up he was seized with a hemorrhage and fell to the ground, dead.

For many years, the butcher and his son searched for the gold, but they never found it. One of the guards from the state prison hunted for it every off-duty moment, but he, too, failed. Through the years many other people have sought the treasure, some using metal detectors and divining rods.

The robbery took place between the Carson River and a low swampy spot near the state prison, in an area of approximately one square mile. Many of the rocks in this location have high iron contents. If the gold is buried under one of these, it is possible that a metal detector could not give the proper reaction.

The snows of winter cover the ground around Carson City with a protective blanket, but the furious gales of spring and autumn can be friend or foe of those who seek the treasure. They can pile it high with sand, or lay it bare. Searchers have undoubtedly walked over the shallow, hurriedly-dug hole filled with gold bullion many times.

But the gold is still there, somewhere in the strip of desert that lies to the northeast of the prison, waiting for some lucky person to come along and find it.

Along this road leading toward the Nevada State Prison stage robbers stole \$60,000 worth of gold bullion from the Wells-Fargo Company. Although the road is much improved today, it still closely follows the old stagecoach route.



Trail to Keynot Summit

Keynot is an honest mountain. It rises openly above California's Inyo range, offering a single canyon route to its summit. Here was an easy, pleasant, uncomplicated Memorial Day weekend climb for Desert Peaks members of Southern California Sierra Club. Louise Werner writes of another adventure of this energetic mountain climbing group.

By LOUISE TOP WERNER
Photos by Niles Werner
Map by Norton Allen

FROM THE Owens Valley highway we could see Mt. Keynot's 11,101-foot summit looming up out of the middle of the Inyo Range in eastern California. A single canyon cut its western slope, opening over an alluvial fan into the valley. Here was an individual among mountains. No

hiding behind false summits, no baffling the climber with route-finding problems—Mt. Keynot laid its cards on the table, face up.

Its originality went further. Instead of thinning its vegetation to a bald dome, Keynot had bared its midriff and covered its upper slopes with

pinus. Dwellers in the valley call it "the upside-down mountain."

This was the peak 22 of us—members of the Desert Peaks section of the Sierra Club of California—had selected for our Memorial Day weekend climb last year. We had not been able to get much advance information about Keynot—and that fact merely added to the challenge of our adventure.

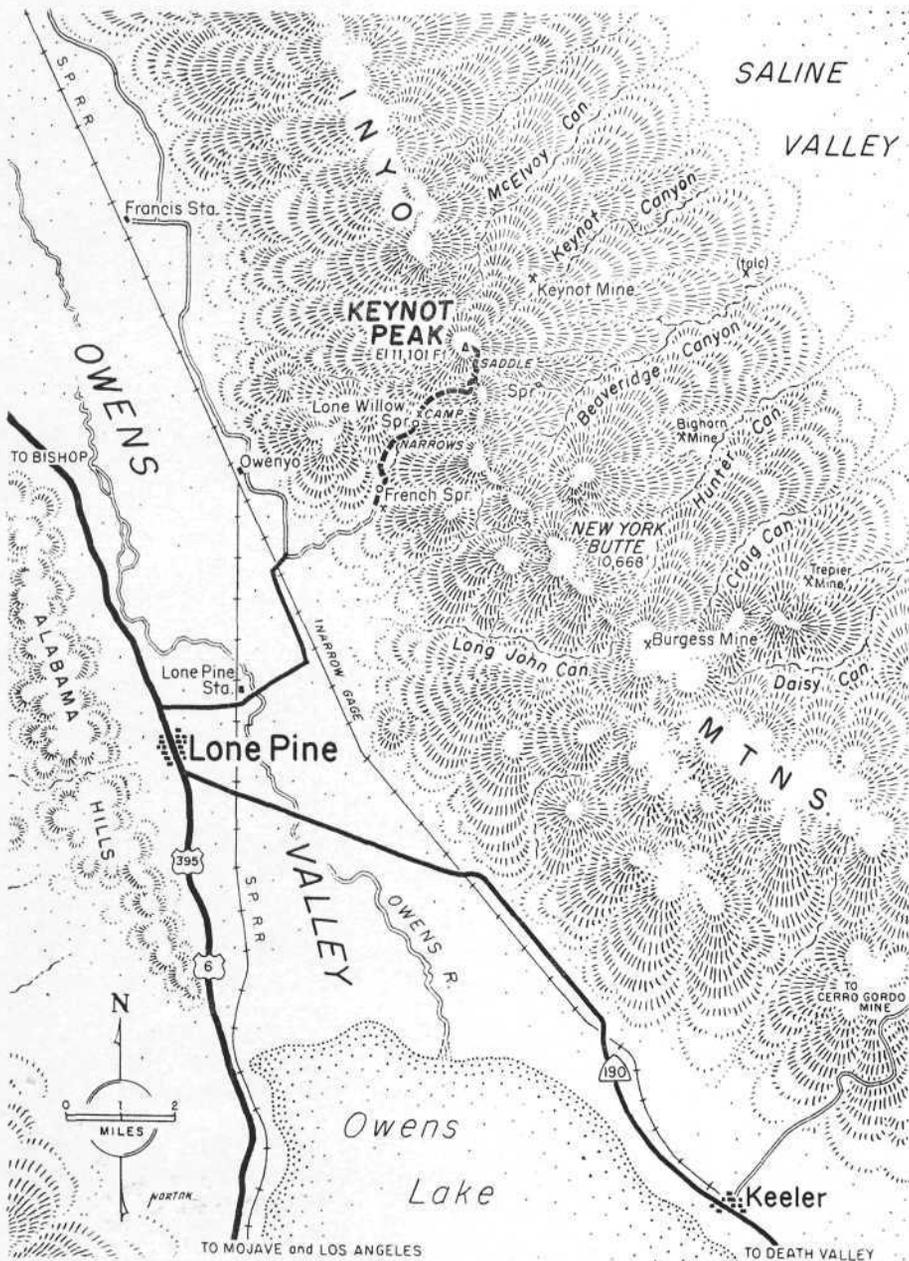
Just north of Lone Pine our caravan turned to the right off Highway 6-395. At the narrow gauge railroad east of the Lone Pine station we left the pavement for two miles of steep rough driving up the canyon.

From the end of the road the trail zigzagged toward a twisted pillar of basalt 400 feet up the slope. The desert had stained the boulders along the way a rich mahogany. To the right, in the canyon bottom, a tangle of Virgin's Bower hid the trickle of French's Spring where quail scurried under arroyo willows and an ash-throated flycatcher dived, clicking its beak on an insect in midair.

Niles Werner, leader, hitched up the felt pads that kept his 30-pound pack from cutting his shoulders, and began wearing down the zigzags with his slow, seemingly effortless pace. Apricot mallow growing out of the shale looked surprised at 22 pairs of boots plodding by. Traffic on the Keynot trail is light these days.

Between 1878 and 1894 mule hoofs rang almost incessantly on the shale, their pack saddles loaded with gold from the Keynot Mine, half a million dollars' worth. From an 8000-foot ridge on the other side of the 11,000 foot saddle they came, clattering down the 12-mile trail to French's Spring, there to be relieved of their loads and to drink from the trough, now a pile of planks rotting under a rusted pipe.

The gold was relayed to the 20-mule teams which hauled it 225 miles to Los Angeles. Bev Hunter of Olancho remembers the big barns spaced about 20 miles apart up and down the valley, housing up to 80 mules, the relay stations for the teams. Bev was born and raised in Owens Valley in the days when eggs were a dime a dozen and a good team of horses sold for \$600. "I would have called anyone crazy who said I'd see that day when cars would roll along the Owens Valley lakebed," says Bev. When he was six it took the family five days to drive 125 miles from their ranch near Independence to the railroad at Mojave.





Desert Peaks members of the Southern California Sierra Club on the top of Mt. Keynot in the Inyo Range of eastern California. Front row, left to right, are Bob Schmelzer, Margaret Jones, Lorraine Ogg, Louise Werner; middle row, Joe Frischen, Roland Kent, Virgil Sisson, Connie Jarabin, Art Widmer, Ed Burnop; rear, Frank Sanborn, John Nienhuis, Dick Kenyon, John Robinson, Jill Johnson, John Wedberg and Ken Rich.

An up-canyon breeze cooled our backs, perspiring under the packs. Niles paused to look back across the valley at the Sierra Nevada where six peaks over 14,000 feet high paraded their snowy headdresses among their less lofty fellows.

"Which is Mt. Whitney?" asked Roland Kent, 14, our youngest knapsacker. Niles pointed out the needle which, though it marks the highest point in the U.S., stood back, overshadowed at this elevation by lesser peaks in the foreground.

At the top of the mahogany staircase we rounded a band of basaltic cliffs. The packs lightened when we saw the trail leveling off over a shale terrace patterned with bunches of yellow grass and gray-green sage. To our left a fault cut off the terrace. Here Nature had, in one of her convulsive moods, taken the stratum in her hands and twisted it, then brushed over the contorted surfaces with a rich brown varnish.

"What's holding up Assistant Leader

Walt Collins?" wondered Niles during a pause on the second terrace.

"Birds," said Frank Sanborn, "I passed him back at French's Spring, stalking birds with his binoculars."

No wonder. Walt had never before spotted the Lutescent and Macgillivray's warblers. Mary DeDecker, a mountaineer-naturalist who lives at the foot of these mountains, was of the opinion that the warblers had sought shelter in the desert from a recent storm in the Sierra. Especially interested in the plants of the Inyos, Mary had already listed under "Plants Along the Keynot Trail," peppergrass, buckwheat, wishbone bush, wild tobacco, peach thorn, squaw currant and a small fern found under the shady side of rocks. "And they call the Inyos barren," she laughed.

On another terrace climbing back toward the main canyon on our right, the shale took on a grapejuice hue. Connie Jarabin, a big fellow with a ready laugh, picked a leaf from the base of a Panamint Plume. "Tastes

like cabbage," he said, offering it to Roland. Roland tasted it, screwed up his face, spat it out and reached for his canteen.

Lunch time—a chance to throw off the packs, stretch out in the sunshine, and after a while revive enough to nibble a carrot, admire a coronet of buds on a prickly pear cactus and inspect Jill Johnson's new Kelty pack. Nylon on an aluminum frame it weighs only two pounds empty. With sleeping bag, ground cloth, a gallon of water, dinner, breakfast and two lunches, sweater, parka, flashlight, toothbrush and matches, the pack weighed 24 pounds.

Connie pointed to a scarlet loco weed and grinned at Roland. "They're good in sandwiches."

"Yeah?" Roland grinned back, "You eat it."

After lunch we climbed toward a bluish-gray streak that followed down the left slope into the canyon narrows. The trail began dropping into the narrows too.

On the watercut walls we read some of the canyon's history. Erosion had left a buttress projecting out of the left wall. On its sheared-off face we saw evidence of faulting and tilting of the strata and of the urgency of hot lava searching out weak spots in the shale, churning tunnels as it swirled. The sheared-off shale glowed like polished walnut while the cross sections of the tufa swirls looked like the roots of branches roughly broken off at the trunk. A lower plug had eroded out leaving a cave 20 feet high.

At the base of this buttress water dribbled over a lime bog. A single willow spread above it. "I had heard rumors about a Lone Willow Spring," said Niles, when some demurred at having carried a gallon of water, "but I didn't feel like depending on a rumor to water a crowd."

"Ugh," said Lloyd Balsam, the Desert Peakers' chairman. "Now we have no excuse for not washing." Most Desert Peakers prefer not washing to carrying wash water on their backs. Aromatic plants like juniper, and sage may substitute quite well for soap and water, with the added advantage that they don't rob the skin of natural oils.

Ken Rich dug a hole in the bog with a tin cup and spoon and soon had a clear pool. It tasted slightly of minerals.

Three and a half miles above French's Spring we made camp on a semi-level spot bordered on the north by a 15-foot gully, just above the Lone Willow Spring. At some time during the past a cloudburst, a real gully-washer, must have thundered down the canyon through the narrows, carrying down pine trees from above Mt. Keynot's midriff. The logs came in handy, and our fire blazed brightly that night.

Desert Peakers eat strange things for breakfast on knapsack trips. Few care to risk carrying raw eggs; a frying pan is hardly worth its weight in a pack. Some had brought their eggs hard-boiled. One mixed powdered egg yolk with powdered milk and cocoa. John Nienhuis was the envy of everyone when he pulled two quart cartons of fresh milk out of a pocket in his knapsack. "Long as I had to carry a gallon of liquid . . ." he said. We remembered a trip when a carton of milk in a knapsack got all mixed up with a sleeping bag. Most oldtimers carry instant coffee but Niles likes to start a long climbing day with a cup of hot jello.

The moon still hung over the south wall when we started our six-mile trek to the summit. For a mile or so we followed the gully. The narrows, deep



Jill Johnson's Kelty pack, nylon on an aluminum frame, weighs only two pounds empty. With sleeping bag, groundcloth, gallon of water, dinner, breakfast and two lunches, sweater, parka, toothbrush, matches and flashlight, Miss Johnson carried 24 pounds on the Mt. Keynot climb. "It is the lightest pack I know of," says the author.

in shadows, were left behind. As they fell below, the slopes took on a roundness, except where scarred by volcanic dikes.

The sun, though it would not show over the crest of the Inyos for hours yet, caused the Sierra snows to blush. Mormon tea was a lively green growing out of the same shale as sage and bunchgrass, which paled into the background.

We zigged right to avoid the cliffs of the midriff, then zagged back toward the almost straight line above which the pines had survived. The first

pinus, white and dead, marked a fork in the trail. The right branch led up toward the Burgess Mine on the ridge several miles to the south. We had traveled toward the sun for two hours while it had traveled toward us, yet we had not met; the ridge stood between us.

We had been hiking in forest for some time when castle ramparts loomed on the skyline nearby. At 8:30 we pulled up to the saddle and met the sun. A hitching rack of pine poles sagged beside the trail. Did the muleteers enjoy the view while they rested the mules after their three-mile pull from the mine? Or were they bored with slopes falling away beneath their feet, and hankering for the level living below? We of the cities enjoyed the canyons filled with tall pines that streaked down toward the Saline Valley.

Here in his youth, Bev Hunter roped bighorn sheep. Some of the rams had a horn-spread of three feet. "Then you had the rough job of bulldogging them to get your rope back," he says. Bev's skill with a bronc and a rope later led to his sharing a bunk with the late Will Rogers in a Wild West Show.

On the saddle the trail deserted us to contour down the east side to the Keynot Mine. With the help of the map we picked out Keynot Canyon, but even with binoculars we couldn't spot the mine. The *Mineralogist's Report* which had described "the Keynot vein, free gold in granite . . . seven tunnels . . . a five-stamp mill . . . water from Hahn's Canyon three miles south . . ." didn't mention the score of shacks that mushroomed out of rock, pine-poles and brush, or the piano that rode mule-back over the 11,000 foot saddle. Keynot's little boom was hardly heard among the big noises of Panamint City and Cerro Gordo. No tourists prowl among the rockpiles that once housed its hopeful miners.

A half-mile of trailless scrambling put us on the summit. Friendly ranges rose all around; northeast, the Last Chance Range where we had once explored Dry Mountain, to the east the Panamints where we had visited Telescope Peak not long ago, beyond, with Death Valley hiding between, the Grapevine Range.

The register placed on Keynot Peak October, 1950, by another Desert Peaks group showed that we were the fifth party to climb the peak since then.

In the pines a Clark's Nutcracker scolded and little birds chickadee-dee-deed and everything seemed pleasantly uncomplicated, just as the mountain had promised us at the start.

LIFE ON THE DESERT

By LEE STROBEL

BACK IN 1916 business was tough in my line around Los Angeles. Fighting with my many competitors for what little there was finally broke me down. I needed a rest, and preferably far away from the clash and clamor of human society.

As if in answer to my problem, I came across a rugged individualist who called himself a land locator. I shall refer to him as Mr. Smith, for I cannot remember his name.

For a modest fee Mr. Smith located people on public lands where, "with a little energy and gumption," they could grow rich in a few years. His sole mission in life, he convinced me, was "to help young fellers" like myself get ahead in this rough and tumble world. His enthusiasm was inspiring.

A day or two later, on a dirt road about ten miles west of the town of Mojave, California, he brought his battered and boiling Model T Ford to a halt in a wilderness of sagebrush and greasewood. He turned to me and smiled. "Here is the place," he announced.

I got out to survey the lonely landscape. Not a house was in sight, nor did it appear that the hand of man had ever disturbed a bush for miles around. Apparently Destiny had chosen me to pioneer the region.

"How about water for irrigation?" I asked.

"That's easy. Drill a well. Plenty of water close to the surface around here," Mr. Smith said with convincing finality.

Upon our return to Los Angeles we went to the U. S. Land Office. I filed a homestead on 160 acres and handed Mr. Smith \$160 for his services. In our parting handshake he said forcefully, "Now git agoin' out thar soon's you can, young feller. You'll make a killin' in a couple years. I'm gonna run out to see ya once in a while."

I never saw Mr. Smith again.

As a veteran of the Spanish American war, I could gain title to the land by living there seven months, provided that ten acres had been cleared and planted to some sort of crop. I could try dry farming if I chose. Later on I could put in a well and pump if conditions warranted.

The first thing to do was to put up a house for my wife, two small children and myself. I designed a 10x20 cabin, and had a lumber firm at Mojave deliver the necessary materials.

With the help of several friends over a couple of weekends, the cabin

was completed and I turned my thoughts to farming. I must take advantage of the approaching spring if I was to prove up and get my title before the year was out. Just what to plant I had not yet determined, but the question was soon answered.

Big advertisements appeared suddenly in Los Angeles newspapers extolling the virtues of Luther Burbank's remarkable new discovery, spineless cactus. It was a boon to civilization, they shouted, the greatest feed for cattle ever found! The arid wastes of California, Nevada and Arizona in a brief few years would be swarming with fat herds relishing this wonderful new forage!

I hurried to the address given, entered the lavishly equipped offices and was greeted by a beaming gentleman of substance and importance. I had come for some descriptive matter and general information, I told him, then mentioned my new venture out in the Mojave Desert.

"My dear sir! How fortunate you are that Mr. Burbank has just perfected the most suitable thing to grow out there," he said with assurance. His ten-minute sales talk convinced me and I invested a considerable sum of money in a sackful of Burbank's wondrous product.

An astounded public hardly had time to digest this botanical sensation when another burst upon the scene. The tepary bean had been found! A sealed olla full of them had been unearthed in the ruins of an Arizona cliff dwelling, it was reported. The bean had been a staple item in the diet of the ancients who found it hardy enough to be grown in their harsh desert environment. Newspaper editors and feature writers discussed with great enthusiasm the probabilities of spineless cactus and tepary beans supplanting sagebrush and greasewood from Los Angeles to Chihuahua.

I decided to try out both of these great discoveries on my desert homestead. More of my dwindling funds were spent for enough of the wonder beans to seed ten acres.

The beans and cactus were duly planted, and a good rain came at the right moment to get them started. When I moved my family to the homestead two weeks later, the beans were two inches high, and every slab of cactus had new shoots on it.

The plants thrived, and I already was calculating my harvest returns when I began to notice more and more

Luther Burbank's amazing spineless cactus and the tepary beans of the ancients were just the crops to plant on his desert homestead, thought Lee Strobel. But he neglected to consider the appetites of his jackrabbit neighbors.

rabbit droppings in the bean field. To my distress, I saw more and more of the lush bushes, heavily laden with swelling pods, fall victim to the increasing number of rodent vandals. The fast growing cactus also showed evidence of gnawing.

By the time the beans were ready to harvest, at least half of the field had been destroyed. I took a gunnysack, ran a wire around its mouth to hold it open and went to work. When the bag was stuffed full of uprooted bean bushes I emptied it upon a wide canvas. When the canvas was loaded I dragged it to a corner where the shed and privy adjoined and emptied it. In a couple of days my quadruped competitors and I had cleaned the field. My share of the crop was a curing stack about as high as my head.

Upon completion of the bean harvest the rabbits went to work on the cactus, and in a few days the patch was gnawed to the ground.

When the beans were cured I began to thresh them. Using the big canvas again, I put a pile of bean bushes on it and beat out the beans with a club. The net result of the laborious operation was three grain sacks full of beans, weighing about a hundred pounds apiece. They looked and tasted like small navies.

I was ready to admit the rabbits had won, and I was convinced if I wanted to make a living I would have to return to the city. My improved health was worth the seven months of time and the several hundred dollars I had invested in the venture.

The homestead fell victim to vandals and the elements. By 1929 there was no sign left of my seven-month occupancy. The depression had knocked me flat, and when a stranger offered me \$250 for my 160 acres, I took it.

I have not seen nor heard of a tepary bean for 35 years. As to the spineless cactus, I heard a plausible story which explains its early demise. According to my informant, cattle who grazed exclusively on the "wonder plant" soon died. Autopsies revealed their deaths were caused by balls about the size of oranges and the consistency of rubber which had formed to plug the digestive track.

It would make me very happy to know that the rabbits who ate my cactus on the homestead were similarly affected and were punished for their thievery with whopping big stomach-aches.



Primary water is most likely to be found in the mountains rather than on valley floors. At extreme right is the new 1500-gallon water well on Riess Ranch high above Simi Valley, Ventura County, California. Photo courtesy Primary Water Development Company, Beverly Hills, California.

New Source of Water for Desert Lands?

Most water is "secondhand." Over and over again it goes through the cycle of evaporation, condensation, precipitation, evaporation. Weather is the master. But Stephen Riess believes it is possible to tap primary sources of water at their original source. Not many geologists share his revolutionary theories as to the availability of primary or juvenile water—but here is his story.

By GASTON BURRIDGE

I AM FAIRLY certain most of the water any of us use today—no matter where we happen to be—is "secondhand" water, secondhand many times over, many years over. Stephen Riess, a German born and trained geochemist and geologist, is not interested in finding secondhand water. He is looking for firsthand water. It is called "primary," "juvenile" or "magmatic" water.

Perhaps "secondhand water" is not too apt a description for ordinary water—water of the hydraulic cycle.

The hydraulic cycle begins with

evaporation—mostly from the oceans. From here, the sun's heat lifts water vapor. This water vapor rises until it contacts cooler air which condenses it into tiny drops of water. These droplets combine to make clouds. Clouds eventually become cooled sufficiently to allow their minute drops to combine into larger ones. These become so heavy that the force of gravity soon outweighs those factors holding them aloft, and they fall as rain, hail or snow. Probably most of this precipitation falls back into the sea, but some of it falls on land.

Of that portion falling on land about 50 percent runs off immediately in rills, creeks and rivers, and returns to the ocean relatively soon. Of the remaining 50 percent which sinks into the ground, 38 to 40 percent is returned, sooner or later, to the surface through capillary action and the transpiration of plant life. Eventually, 10 to 12 percent reaches the water table to feed our pumps. It too, joins the hydraulic cycle soon after use. This, then, is secondhand water—water used over and over again in the hydraulic cycle.

Primary water is water which has never seen the light of day before, never felt the throb and rhythm of ocean waves—water which has never known what has always seemed to me must be the most thrilling ride in all the world—the ride with the clouds. Neither has it ever been through the process of evaporation.

"Primary water is the child of darkness," says Riess. "It is conceived in convulsion and heat, in the interior depths of the earth where giant batholiths of fluid magmas continue to cool gradually and form first crystals of the more basic foundation stone. Primary water is, in my opinion, the

original source of all water on our globe."

One of the most exciting possibilities of juvenile water is that it can be found as easily in desert country as anywhere else. Perhaps easier. "Walk on granite," says Riess, "and you walk over primary water."

In the fissures and pipes of igneous and plutonic rock flows this new source of H₂O. It can be found readily in the desert because there surface rock is more naked of top soil, thus revealing true faulting and contours.

Stephen Riess is not a seer. He is not a "water witch," a dowser or water diviner. He uses neither crystal ball nor gadgets. He uses his head. Riess is a trained geologist and geochemist who employs scientific methods. Much of the information he obtains, upon which his decisions are based, is produced in any one of several commercial laboratories, from their analyses of submitted samples. Riess studies the petrographic, the crystallographic as well as the chemical analysis of a site's rocks. How he uses this information is the important thing. That is his secret! A secret ferreted out the hard way—through long years of patient work, thinking, experimenting—being laughed at from many quarters.

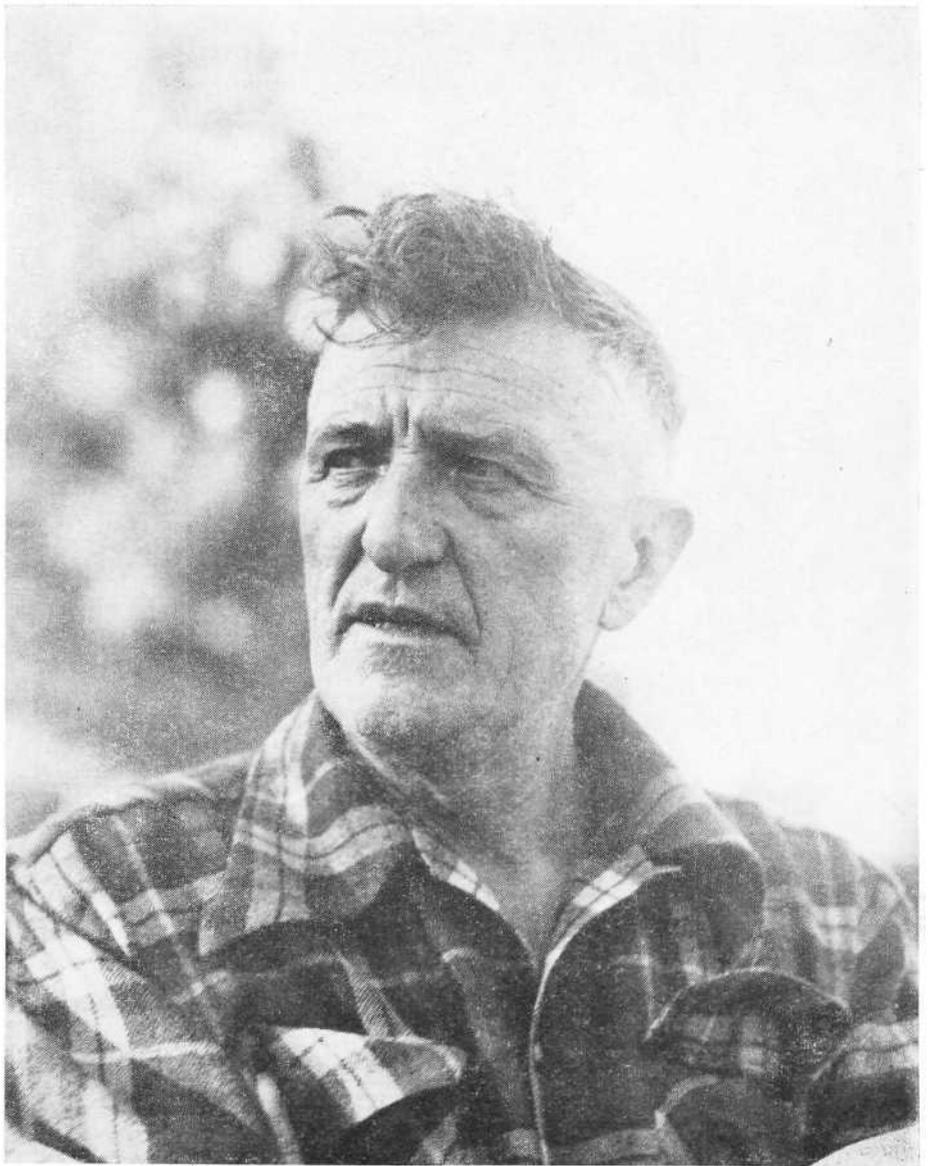
"I did not promulgate the primary water theory," says Riess. "Such geological bigwigs as Dr. Oscar Meinzer of the U. S. Geological Survey and Dr. Waldemar Lindgren of Massachusetts Institute of Technology have written on primary water, but you won't find out much about it in geological textbooks."

What Riess has done is to apply this theory, to learn how to use it in actually locating sources of this new kind of water.

Juvenile water is as wet as any other water. It tastes the same, boils the same, looks the same as that spilling from the spigot or dipped from an irrigation ditch. Ordinarily, primary water is softer than average well water found in the West.

To date, Riess has located 70 water wells—60 in the United States, six in Mexico, one in Canada, one in Brazil and one in Peru. The Brazil and Peru wells were found and drilled in 1922. They were the first and second wells. His third well was drilled on his own ranch 19 years ago. All save three are eminently successful and, he says, "I believe I now know why those three failed to meet my expectations. I learn something new with every well."

Such a record, built over so wide an area, either makes Stephen Riess one of the luckiest men in the world—who could far more profitably spend



Stephen Riess, German-born geo-chemist, whose revolutionary theories on primary water have stirred a tempest among geologists.

Photo by the author.

his time in Las Vegas, Reno or Monte Carlo—or it is evidence as to the validity of his thinking!

Riess lives high above Simi Valley in Ventura County between the Santa Susana Mountains and the Simi Hills about 35 miles east of Ventura, California. There, on his own land, he has three wells which he believes tap the source of juvenile water—the one drilled 19 years ago, one drilled two years ago and one just brought in. There is not one ordinary water well in Simi Valley which has not suffered greatly from a constantly sinking water table. Many wells have played out completely. Some can only be pumped a short time, then must be rested for days. Riess says his wells never change. The 19-year-old one delivers as much water today as it did when first brought in.

Primary water wells are not affected by surface climate. Drouth is as far

from affecting them as the moon. If Simi Valley received no rain for a hundred years, Riess believes his wells would continue to deliver as much water. "Severe earthquakes may affect primary water wells temporarily, or permanently, by restricting or closing their orifice," explains Riess, "but climate—never!"

Riess does not go to the valleys looking for juvenile water, although, on occasions, it may be found there. No, he hikes to the mountains—and not the mountain valleys or canyon-bottoms, either. He seeks the high sides of mountains, sometimes even their higher tops. The wells which tap primary water are drilled through basic rock, into and through the very bones of the continent, because juvenile water is found flowing in fissures, cracks, flutes or pipes of these rocks. Primary water does not come from sedimentary collections of earth sur-

face materials caught in a basin and held for eons. The deepest well Riess has drilled for juvenile water is 1400 feet. His shallowest is 232 feet.

"All primary water may eventually find its way into the water table, or

directly into water courses or into the sea," says Riess. "But I do not attempt to tap it there. I tap it long before it gets that far down!"

Juvenile water comes from deep, very deep within the heart of the rocks

from which it issues. Its course is long and devious—probably as much as 40 miles! Naturally no one can be sure of just how the water comes into being. Riess says the trick isn't so much in finding primary water as it is finding cool, sweet primary water. Fully 75 percent of all juvenile water is so hot and so highly mineralized as to be unfit for human or agricultural use.

As crystallization takes place deep in the rock masses which lie beneath the surface, great quantities of the elemental gases are continually formed. These are generated under tremendous and constant pressure. This pressure forces these gases into multitudinous cracks which lace this forming rock. As the gases rise, they cool. As they cool, they contract. As they contract they leave space behind them for more gas to come along. As these gases continue to rise they come in contact with other elements and combinations of elements in different states of coolness and exposure. Here they combine with these other elements, or some of them do. New compounds are formed, perhaps leaving hydrogen and oxygen free to move on together.

Scientists now believe that water vapor—commonly called steam—does not exist as such at pressures above 560 pounds per square inch, but separates into its elemental gases, hydrogen and oxygen.

The cool, sweet juvenile water probably is born under conditions where these two gases travel together for a long enough period to cool below the 560-pound mark, then they are free to join and become water vapor, which is able to maintain its identity until cooled enough to condense and become water rather quickly in surroundings that preclude the absorption of solubles.

Nobody knows about these things. The deepest hole man has ever drilled in the earth is slightly over four miles. Ten times that is a long way, and we can have but theories for a while yet.

"It is my belief," says Riess, "that during a considerable portion of Earth's early history—even after its surface cooled sufficiently to hold water—there was little or none here; that all water now present on earth, was once juvenile water! I believe further that the total amount of water on the earth's surface is increasing, slowly, of course, and one day, some two or three billion years hence, water will cover most of that which is now land."

Riess is 53 years old. He was born in Bavaria. In Germany he attended a naval academy. His teacher of geology there was a rebel thinker, geologi-

Desert Quiz

There's a bit of geography, history, botany, mineralogy and general lore of the desert country in this Quiz—and you will find it an interesting and stimulating experience to test your own knowledge of this fascinating land of sun, sand and solitude. Twelve to 14 correct answers is fair, 15 to 17 good, 18 or more excellent. The answers are on page 26.

- 1—Bright Angel Trail leads to —The top of Mt. Whitney . . . The bottom of Grand Canyon . . . The shore of Great Salt Lake . . . The depths of Carlsbad Caverns . . .
- 2—Pat McCarran is—A U.S. senator from Nevada . . . The governor of Arizona . . . Director of the National Park Service . . . Secretary of the Interior . . .
- 3—The legendary Lost Dutchman mine was in the—Harqua Hala Mountains . . . Wasatch Mountains . . . Superstition Mountains . . . Chuckawalla Mountains . . .
- 4—El Morro National Monument is in—New Mexico . . . Utah . . . California . . . Arizona . . .
- 5—*Chinde* is a Navajo word meaning—Dwelling place . . . Spring . . . Scalp . . . Evil Spirit . . .
- 6—Before the Metropolitan Water district's dam was built in the Colorado River at Parker, the valley where the reservoir is now located was inhabited by—Apache Indians . . . Chemehuevi Indians . . . Mormon colonists . . . Yaqui Indians . . .
- 7—If you stood on the 12,000-foot peak of Mt. Timpanogos you would be looking down on the state of—Nevada . . . Arizona . . . New Mexico . . . Utah . . .
- 8—The color of the Evening Primrose which grows on the dunes after heavy winter rains is—Purple . . . White . . . Yellow . . . Orange . . .
- 9—The capital of New Mexico is—Santa Fe . . . Albuquerque . . . Gallup . . . Taos . . .
- 10—Kearny's Army of the West on its historic trek to win California for the Union crossed the Colorado River at—Yuma . . . Blythe . . . Parker . . . Needles . . .
- 11—Rock so light it will float on water is—Manganese . . . Talc . . . Pumice . . . Obsidian . . .
- 12—Until his death a few months ago Johnny Shoshone was a well known Indian in—Winnemucca . . . Peach Springs . . . Death Valley . . . Window Rock . . .
- 13—The author of *Death Valley in '49* was—Kit Carson . . . William Lewis Manly . . . W. A. Chalfant . . . Will Caruthers . . .
- 14—Indian symbols incised in the rocks in many places in the Southwest properly are called — Petroglyphs . . . Pictographs . . . Hieroglyphics . . . Indian Sign language . . .
- 15—Fairy Duster is the common name given a desert—Hummingbird . . . Flower . . . Insect . . . Lizard . . .
- 16—Miners refer to a surface exposure of rock as an—Outcrop . . . Overburden . . . Vein . . . Ledge . . .
- 17—Stalactites found in caves generally are a form of—Limestone . . . Gypsum . . . Salt . . . Quartz . . .
- 18—The Museum of Northern Arizona is located at — Flagstaff . . . Prescott . . . Williams . . . Winslow . . .
- 19—Tombstone, during the height of its mining boom, produced mostly—Gold . . . Silver . . . Copper . . . Quicksilver . . .
- 20—The historic Oatman Massacre took place near—The present mining camp of Oatman . . . Along the Gila River . . . At Taos . . . In Death Valley . . .

cally. He instilled in Riess much independence of mind and dislike for what Riess calls, "a lot of deadwood of dogma" surrounding much of present day geological thinking.

Riess left Germany in 1932 after the Hitler *Putsch*. "I saw the handwriting on the wall for the Fatherland," he says. He traveled in nearly every country in the world, sailed nearly every sea, following the career of metallurgist and mining engineer. He and the late Louis Adamic, the writer, were friends. They learned English together on the deserts of California, reading a dictionary while they worked at the mining game.

How does Stephen Riess locate a juvenile water well? That, of course, is his secret. It is a complicated process having to do with the angles at which faults and strata lie in relation to one another and to the points of the compass, what the composition of each is in relation to its neighbor and to themselves in depth. In other words, what stratum lies on top of what stratum, for how far down, and at what angle, as well as in what relation to surrounding ridges, faults, strata and peaks. But let us assume a case.

Riess is called to make a survey for a primary water well. Once in the vicinity, he can tell by general lay of the land what the chances are of finding a source of juvenile water. If he thinks the situation favorable, he makes a careful, complicated check. This requires three to five days, depending on terrain, kind of rock encountered on the surface, position of faults to points of compass, to ridges, to peaks.

"If," says Riess, "after this survey is completed and the information obtained from it evaluated, I still feel there exists concrete possibilities for developing juvenile water, we must have core drillings made. Some of these drillings are sent to any one of several commercial laboratories for analyses. After the laboratory returns its findings I assemble the information for interpretation and combination with my own findings. From these, I determine how deep the pipe or flute carrying the water lies. Also, I can predict then what volume of water the well probably will produce."

After these conclusions are reached, there comes the problem of drilling the well itself. This is indeed no small part of the whole scheme. Well drillers generally have their own ideas, and are reluctant to take instruction. Riess says, "I know of only four rock drillers capable of drilling such holes as I must have." Why? Mostly because such a well driller must know what he is doing every minute of drilling time.



Stephen Riess beside one of the wells he has drilled in Ventura County, California. He says this well is unaffected by climate conditions.

Photo by the author.

Such wells are no places for any guess work. One of the most important factors is, these bores must be straight! Not straight just one way, but both ways because targets are often small and if the hole is not plumb it can easily miss. A near miss is as tragic as a far one!

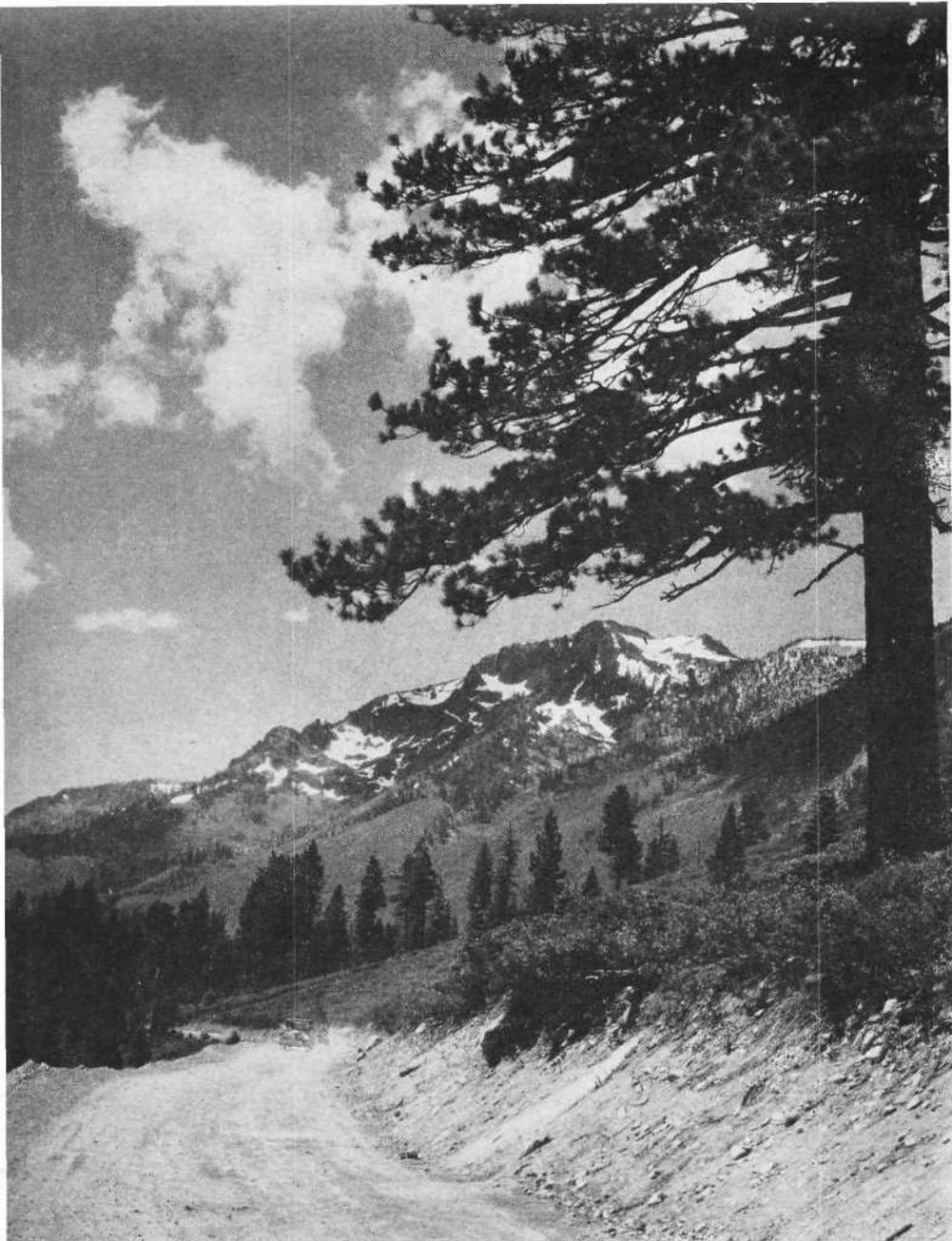
Naturally, there is immediate interest as to how much such wells cost. They are not cheap, but they are not prohibitive. "Because every juvenile well is an individual proposition as to depth, kind of rock to be penetrated, roads to bring in equipment and supplies, etc., no general figures can be set down. But the most may be from \$10,000 to \$20,000."

There is another important point. Unless one owns considerable land adjoining mountains and unless a well site can be located on land so owned, it is necessary for prospective juvenile

well owners to proceed on the same basis to acquire the well site as he would if he were locating a mineral claim. This is done to be certain, after water is found, that the owner will be allowed to use that water for purposes intended.

How do we know it is primary water? Even a cursory review of volcano eruption information reveals such explosions carry immense quantities of water vapor under tremendous pressure. Where did this water vapor come from? Surely not from the surface of the earth! Such investigations as have been made there only point more in the direction Stephen Riess is going.

Primary water is new water, revolutionary water. It would appear to be a constant source of water. Whether one has a water problem or not, here is an interesting subject for future exploration.



Mount Rose, near Reno, Nevada

DESERT ENCHANTMENT

By GRACE PARSONS HARMON
Desert Hot Springs, California

It was a rare, unearthly light
That laced the desert air;
There was an opalescent sheen
That wrought a beauty there:
The desert hills no more were harsh,
But shed a rosy glow
That fused to amethyst—to pearl—
Then, as the sun slipped low,
Each peak shone alabaster soft,
As from an inner gleam
New-freed by alchemy unknown—
Elusive as a dream!
As in a dream, the light intoned
The song soft colors hymned,
Till, like a great recession,
The soundless vespers dimmed!

NEW TAPESTRY

By ALICE TENNESON HAWKINS
San Pedro, California

Although the rains began but yesterday,
Already, winter hills have been washed
clean
And have discarded rugs of sun-bleached
gray
For velvet carpeting that shimmers green.

DESERT CACTUS

By PATRICIA K. NORMAN
El Paso, Texas

Shave that growth of whiskers!
Comb that tousled hair!
Then the desert maids will love you
And you'll be welcome everywhere.

DESERT ROYALTIES

By GEO F. RANSOM
Los Angeles, California

I sat in the desert, where the barren hills
Watched over the naked ground
And the shadow crept from peak to peak
As the moonbeams drove them around.
And over the lake, dried, seared and old,
With its salt crust fathoms deep,
The moonlight played on the ice-like sheet
Where the ripples that gleam were asleep.
And the royal moon, with her knights—the
stars,
All wrapt in a robe of blue,
Went stately by on her westward bent;
Till the mountains hid her from view.

I too was of royal blood that night
As I sat with my queen on the throne;
And we ruled together this desert land
Over no one but us alone.

They Cradle Me

By OLIVE McHUGH
Salt Lake City, Utah

I must go back to the mountains,
To their steadfastness, grandeur and poise;
I am lost in the maze
Of the city's tense days,
Their problems, their Babel of noise.
I long for the beauty of mountains,
Their canyons and forests and peace:
I played as a child
In the depths of their wild
They will give my frustrations release.
I shall go back to the mountains.
They will cradle me once I am there,
With the lullaby tune
Of the creeks as they croon
I shall rest and dream in their care.

DESERT'S SECRETS

By DIANA-DEE HOVANESSIAN
Cedar City, Utah

My desert keeps no secrets
Nor sings the same long tale,
And though no voice nor eye she shows
Here is the last wind's trail,
Here sunned a snake and lizard,
Here passed a horny toad,
And here's a scaly centipede's
Lightly fingered road,
And though she hides her denizens
And covers them so well,
Where they were and what they did,
The desert likes to tell.

ENCHANTMENT

By ANNA M. KLAGGE
Phoenix, Arizona

Sun bathed, wind swept and aged
Beneath the eternal sun,
The desert weaves enchantment
When the eventide is come.

DEPARTURE

By ROBERT R. READ, JR.
State College, Pennsylvania

"My boots hang by the old corral,
My saddle is in the shed—
Tomorrow morn I'll saddle up
Before the dawn is red."

The dawn broke red, then palely moved
Across the desert sands—
A horseman climbed the westward ridge
That borders the mountain-lands.

No one knows where that rider went
When he left the old corral;
The law of the desert was never to ask,
But only "Good luck, old pal!"

On Wisdom

By TANYA SOUTH

The wise man knows his limitation.
The wiser, knowing, forges on,
Determined nothing in creation
Will stop him ere his quest is won.

The wisest says a little prayer
In faith — and strives. It gets him
there.



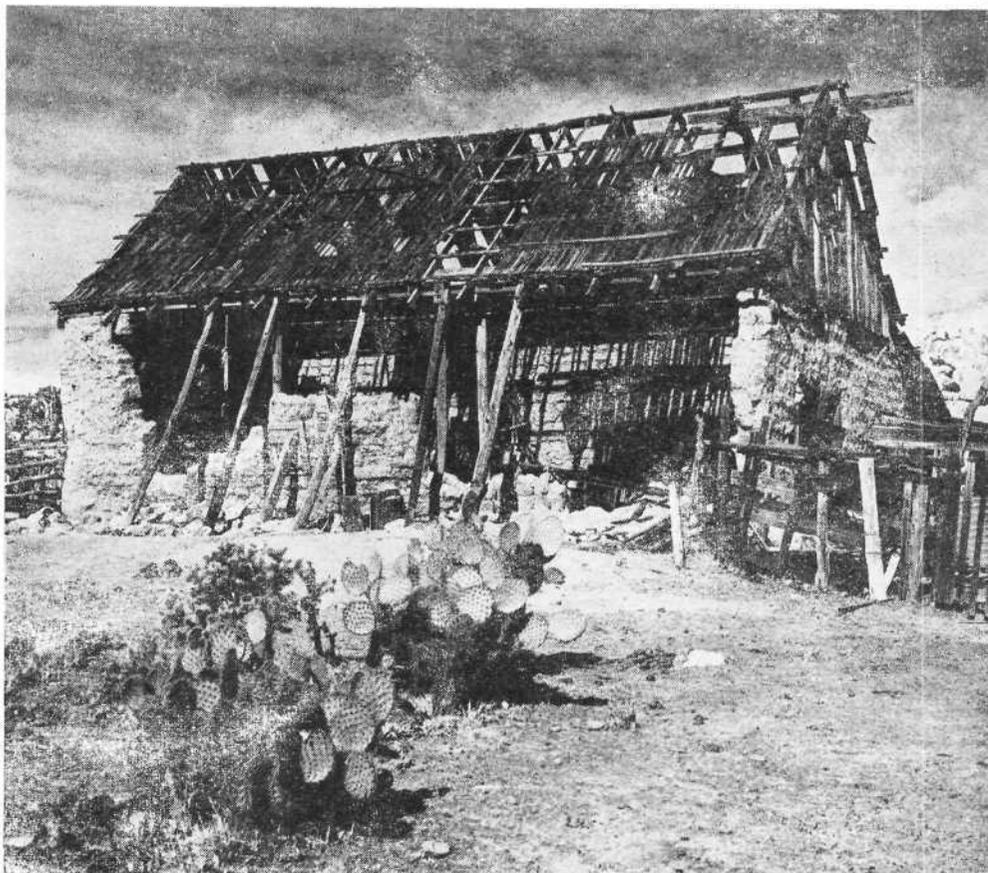
PICTURES OF THE MONTH

Paiute Pahooses...

This quartet of entrants in an Indian baby contest at Carson City, Nevada, made a prize-winning photograph for Adrian Atwater of Carson City. Taken with a 4x5 Speed Graphic camera, Super XX film with flash fill, 1/50 second at f. 12, the picture won the first award in February.

Adobe Barn...

Nicholas N. Kozloff of San Bernardino, California, was given second place honors for this study of an old adobe barn on the Keyes Ranch. He used a 4x5 Speed Graphic camera, 1/100 second at f. 11 with Panchromatic X film and an X-1 green filter.



MINES and MINING

Nelson, Nevada . . .

"One hundred percent recovery of gold," is the claim of Inventor Peter Gregerson for his Gregerson Concentrate Classifier, now at work in a leased canyon near Nelson, 60 miles from Las Vegas. Previous gold mining machines have never been able to recover all the gold from gravel fed to them. The machine, result of 20 years' research and experimentation, has been used successfully in Alaska, it is reported. According to those who have seen it in operation, it requires only three men to operate, is capable of doing in a week the amount of work that takes a month by hardrock mining methods and moves about a thousand yards a day, processing as it moves. The only machines now operating are in Alaska and in Nelson, where the inventor says "there is enough work to keep us busy for about three years." —*Las Vegas Review-Journal*.

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Aguila, Arizona . . .

Bert Boyd reports he is building a 300-ton capacity manganese mill eight miles south of Aguila. A well is being drilled at the mill site, and it is hoped that sufficient water is developed to operate the mill 24 hours a day. If so, 12 to 15 men will be employed on three shifts.—*Wickenburg Sun*.

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Gabbs, Nevada . . .

Toiyaba Mining and Milling Company's newly constructed scheelite mill near Gabbs went into operation the last week in January, processing 50 tons of raw ore per day into tungsten concentrates. The firm buys raw ore from small producers in Gabbs Valley, where there are six deposits now producing.—*Fallon Standard*.

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Pomerene, Arizona . . .

Standard Tungsten Corporation is building a 150-ton concentrating mill in the Little Dragoon Mountains 35 miles east of here. When operating at full capacity, the mill will employ 100 men, according to Dr. S. C. Hu, president and chief engineer of the international mining company. Dr. Hu and Chinese and American friends formed Standard following the seizure of China by the Communists in 1950. Seventy percent of the tungsten used yearly by the United States had previously come from that country. —*Mining Record*.

Elko, Nevada . . .

Sloan & Kingaard moved in diamond drilling equipment to the Searchlight group of tungsten claims for a winter exploratory program in the south end of the Ruby range, White Pine County. Preliminary surface investigations returned assays of .30 to 3.7 percent tungsten trioxide.—*Pioche Record*.

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Ely, Nevada . . .

A new gold rush broke in Nevada in February—but this time the race was for black gold, something new in the state that has produced billions of dollars worth of gold and silver. The U. S. Land office in Reno was swamped with hundreds of applicants after Shell Oil Company announced that oil in commercial quantities had been discovered in Railroad Valley, 60 miles southeast of Ely. Shell announced that 40 barrels of 26 gravity oil—oil of medium or fairly good quality—had been produced during a four-hour test period from a 6,583-foot well. Shell struck oil in its first drilling venture in the state. At least half a dozen other wells have been drilled in the same general area by other firms within the past 18 months without success.—*Ely Record*.

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Farmington, New Mexico . . .

Two Farmington men who made a hobby of prospecting with a geiger counter announced recently that they had made the first discovery of uranium ore in San Juan County. Jack Boyd, refining company employe and hotel night clerk, and Joe Siracusa, barber, said Atomic Energy Commission assay reports show the ore "very promising." They said the deposit was about 20 miles west of Farmington.—*New Mexican*.

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Clarkdale, Arizona . . .

Erle P. Halliburton, Oklahoma oil man, does not plan to use the whole town of Clarkdale for his limestone operations and is interested in bringing in other industries. Associates of Halliburton said he is anxious to sell or rent Lower Town, a development of smaller houses, and at least two large buildings. Whether or not he exercises his right to buy Clarkdale depends on proof of large quantities of limestone of uniform grade. Tests so far have shown high-grade stone, but their extent is unknown.—*Verde Independent*.

Goldfield, Nevada . . .

A diamond drill crew is busy exploring a group of patented claims in the Goldfield area recently purchased from the county by J. T. Brunette. The claims — the North Star, White Rock, Black Hawk and Black Lion— are located approximately three miles east of town. Close to the old Pittsburgh shaft, they are in a highly mineralized zone upon which extensive diamond drilling was done several years ago.—*Pioche Record*.

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Washington, D.C. . . .

Dr. Thomas B. Nolan of Nevada, assistant director of the U. S. Geological Survey, has been awarded the K. C. Li medal together with a cash award of \$1000. The medal, established in 1948 by Li, discoverer of the world's largest source of tungsten in southwestern China in 1911, is for meritorious achievement in advancing the science of tungsten. Dr. Nolan is tungsten specialist of the USGS. —*Reese River Reveille*.

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Winnemucca, Nevada . . .

First carload shipment of uranium ore from the Moonlight Mine strike assayed at .20, a fair commercial grade, it was reported. As a result of initial tests, the Uranium Metals Corporation of Denver, developers, sent out five of its top geologists to conduct a survey of samples in the field. By shafting the open cut, there is a good possibility that a more valuable grade of ore may be uncovered.—*Humboldt Star*.

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Washington, D. C. . . .

More public lands covered by oil and gas leases now are open for uranium mining development, according to a new Atomic Energy Commission regulation which allows uranium leases on lands previously closed to entry under the mining laws. The new ruling is designed to encourage private companies and individuals to develop and produce uranium bearing ores from public lands. A person seeking a lease must record for each tract a "Notice of Lease Application" in the office of the county recorder of the county in which the tract is situated. The application must be made within 30 days after he has identified, marked and posted the land. Within the next 60 days he must file a lease application with the Grand Junction Operation Office of the Atomic Energy Commission, P. O. Box 270, Grand Junction, Colorado. A copy of the new regulation, "Domestic Uranium Program Circular 7," also may be obtained from this address.—*Beatty Bulletin*.

NAVAJOS

I Have Known

Joe Kerley became a successful trader on the Navajo reservation—but he learned the hard way. His story of one of the first lessons he learned in a trading post reveals some interesting facets in Navajo character and custom.

By JOE KERLEY

Illustration by
Charles Keetsie Shirley
Navajo artist

IT WAS ALL because I lost my temper that I have this tale to tell. Thirty-five years ago I was running a trading post on the Navajo reservation. One of my finest customers was Blind Man.

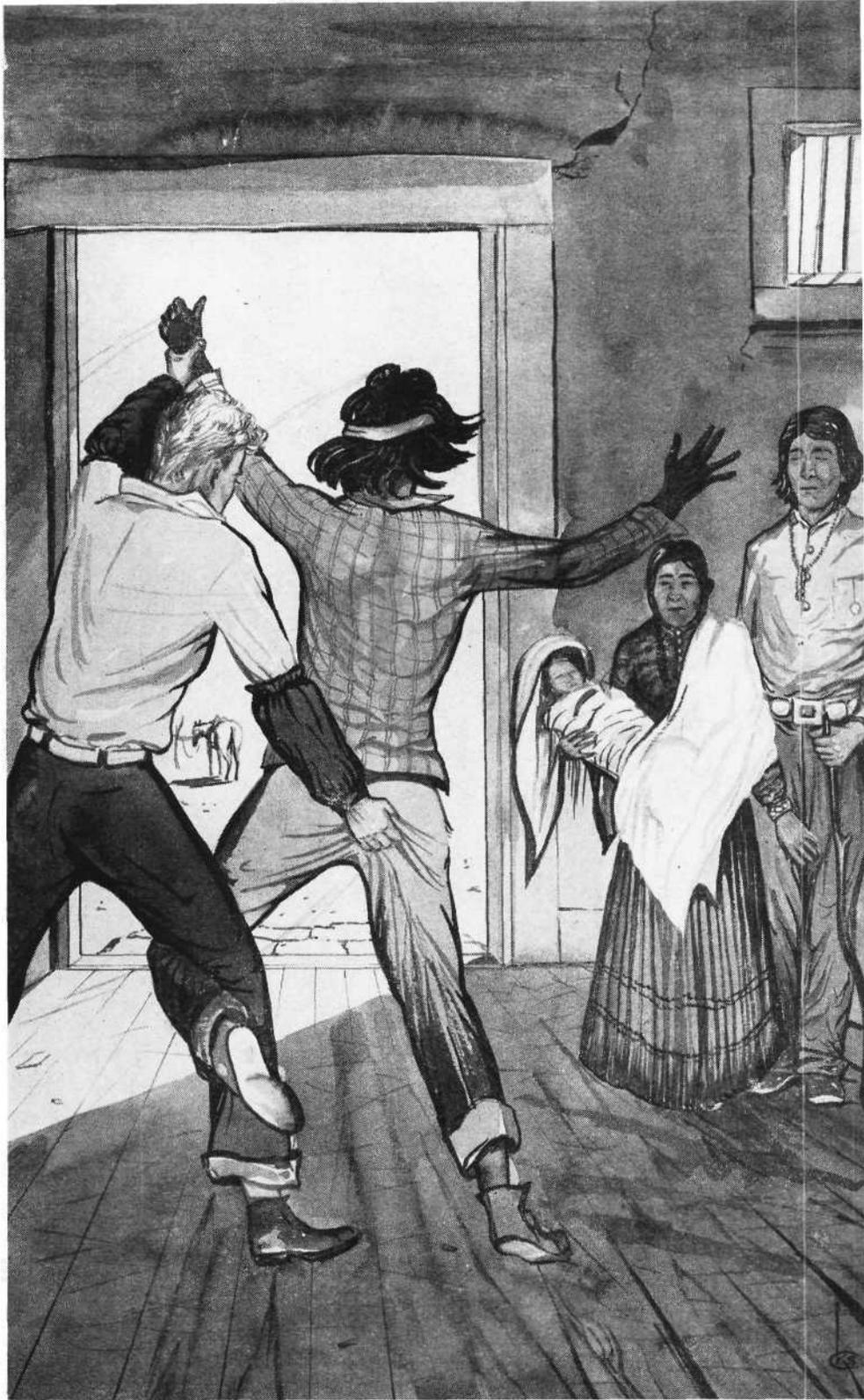
According to Navajo standards, Blind Man was well-fixed. According to white man's standards, he was very poor. Today Navajos are somewhat better off.

Blind Man owned a few hundred head of sheep, several ponies and burros and two wives. Through the ravages of trachoma he had become totally blind.

He was a fine and noble figure. He had a large intelligent head and all his features proclaimed manliness and strength. Even his sightless orbs gave evidence of intelligence, composure and quiet, worldly wisdom. Looking at him one felt that he saw clearly with his mind, and felt deeply with his heart. I was proud to have him for a customer and a friend. Dealing with him was a pleasure. He had confidence in me and never complained about what I paid him for his wool or lambs, nor about what I charged him for the goods he bought.

Some Navajos make the life of a new trader miserable by telling him he is stingy, a liar and a cheat. Some will even go so far as to tell him that he is not liked, and that the Navajos are going to run him off the reservation. Blind Man never did any of these things. Of course this pleased me and I valued his friendship highly.

Old-time traders had told me that at first I might be subjected to much raillery. I was cautioned to let it all go in one ear and out the other, and above all, never to lose my temper. Navajos very seldom lost their tempers. They patiently thresh out their difficulties in quiet even voices. To lose



"By terrific tugging and yanking I finally got him through the door."

one's temper is looked upon as childish—a weakness. Once having shown this weakness, a trader would be forever hounded and belittled, perhaps forced to leave the reservation. The Navajos would say that he was "mad all the time."

I will never forget one day when Blind Man had sold me a hundred dollars' worth of wool. In those days a hundred dollars was a whole lot of money for a Navajo to have all at one time, and it meant a good day's business for any trader.

Blind Man was standing at the

counter spending his money for groceries and dry goods. His younger wife was with him. Their baby, neatly laced to his cradle board, lay on the counter in front of them. Navajo babies are beautiful. No other babies have such alluring eyes, such endearing smiles.

I have heard people say that they have never seen a beautiful squaw. We must class such people with those who say that the Grand Canyon is just a big hole in the ground.

Blind Man's younger wife was a lovely woman. She was tall, slim and

graceful. Her oval face of light tan complexion was warm, girlish and friendly. In her purple velveteen blouse, full skirt and neat buckskin moccasins, she was as attractive a figure as one would see in any land.

Blind man and his family were among the aristocrats of the reservation. It has always been a marvel to me how so many Navajos, living under such primitive conditions, untrained in court etiquette or Emily Post, can conduct themselves at all times and under the most trying circumstances, with such good manners and dignity.

Trained in Nature's rigorous school, many of the tribesmen are models of courtly behavior. When one lives among them for many years, he sees much beauty, much nobility, much to admire and respect.

When the Navajos have the money, they are lavish spenders. Blind man was in his glory this day. Besides groceries, he bought sateens and velveteens for his wife and children. On another day he would come in with his other wife and spend just as freely. Today he was Prince Charming to his younger spouse.

He would suggest to her what to buy, put his money on the counter, and I would give him his change, if he had any coming. She watched all transactions; in fact, she was really doing the trading, but was pleased to let Blind Man think he was doing it. They were a congenial couple. Most Navajo couples are fond of each other, and they love their children.

A young Navajo was standing next to her. For some time he had been quiet, just sizing me up. Finally he said to Blind Man:

"The trader is cheating you; he is a cheat and a liar." This was what I had been warned to expect, and cautioned not to let annoy me—to let in one ear and out the other.

I tried to appear unconcerned, as if I had not heard the remark; but it evidently did not all go out of my ear, for I felt my blood pressure rising a bit and I looked at the young fellow. I was new; I did not know him.

He smiled a contemptuous smile and said to me, "You are not as good as the trader who was here, the Navajos don't like you." I turned the other cheek, and went on trading with Blind Man. I must not get mad. So far, no one in the store seemed to be paying any attention to him, least of all, Blind Man.

"This new man is stingy," said the heckler. "He doesn't pay as much for wool as the other trader did."

I went on trading with Blind Man,

but it was difficult not to hear what was being said about me. There must have been some sort of detour in my ear passage; everything wasn't going out the other side.

I had been told that one way to shut up a fellow like this was to ridicule him—make fun of something about his clothes, his horse or his hat—or I could say, "Everybody knows you skin coyotes," or "When did you look at your mother-in-law?"

That would get his goat sure, for skinning coyotes or looking at one's mother-in-law are both strictly taboo in Navajo custom. After skinning a coyote or looking at his mother-in-law, a Navajo would have to have a sing to drive out the evil spirits.

But I didn't know how to say that much in the Navajo language. Anyhow, I must not give the impression that this fellow was getting under my skin.

There were several Navajos in the store, chatting and smoking. Navajos are never in a hurry to be waited on. Many come to the trading post just to hear the news of the reservation and meet old cronies. Addressing everybody, the young fellow said:

"This trader is stingy, the other trader gave us free coffee and tobacco; this fellow is sure stingy. Pretty soon nobody will be trading here."

I went on waiting on Blind Man, trying to appear calm, but it was not easy. Turning the other cheek too often was getting both sides of my face raw and sensitive.

To lose one's temper in front of such fine people as Blind Man and his beautiful wife and baby would be as out of taste as causing an unseemly fuss in Westminster Abbey at the coronation of Queen Elizabeth. I would lose caste.

An Indian woman came in with a rug and placed it on the counter. This reassured me. I had already bought a hundred dollars' worth of wool, and here was one of the best weavers with a rug. It would be worth at least 30 or 40 dollars.

"This trader doesn't want rugs; that's why he pays so little for them. Take your rug some place else," said my friend to my good weaver.

I tried to appear calm. Inside I was boiling with anger.

To my dismay my good weaver picked up her rug and went out. This fellow's talk was beginning to work on me and on my customers.

I was fighting to keep my temper. I could hardly keep my mind on my trading with Blind Man. Once I cut off five yards of black velveteen when he had asked for brown; then I short-

changed him. Worst of all, I asked him to pay for an article he had already paid for.

"I told you this trader is a cheat and a liar," said my tormentor. "He makes you pay twice for everything."

That did it. Let them run me off the reservation! I jumped over the counter and grabbed the scoundrel by the shoulders and tried to rush him out of the door. I thought I had taken hold of Pike's Peak. He was a passive resister—he just rigidly braced himself. It was like wrestling a 500-pound bale of cotton. By terrific tugging and yanking, I finally got him outside. He just grinned at me and calmly rolled a cigarette, saying, "La!"

When I got back behind the counter, I was breathing heavily and my heart was pounding like a trip-hammer.

Blind Man asked his wife what all the commotion was about.

"Well, well," he said sadly, "I thought this trader was a man, but he's only a child. I heard all that Navajo was saying, but I paid no attention to him. Why did the trader lose his head? I am ashamed of him!"

Just then my heckler came back into the store, smoking his cigarette, and said, "La!" Everybody laughed and looked at me.

Now *la* in Navajo can have many meanings. In this particular case it meant, "Ha, Ha! I got the trader's goat, didn't I?"

I had taken two terrific beatings, one from my heckler and one from Blind Man.

But it is true that a tenderfoot on the reservation learns the fine art of trading with the Navajo—and while he is learning to do that he also is acquiring a degree of self-control and an understanding of human nature that will serve him well in every walk of life.

ANSWERS TO DESERT QUIZ

Questions are on page 20

- 1—The bottom of Grand Canyon.
- 2—A U. S. Senator.
- 3—Superstition Mountains.
- 4—New Mexico.
- 5—Evil Spirit.
- 6—Chemehuevi Indians.
- 7—Utah.
- 8—White.
- 9—Santa Fe.
- 10—Yuma.
- 11—Pumice.
- 12—Death Valley.
- 13—William Lewis Manly.
- 14—Petroglyphs.
- 15—Flower.
- 16—Outcrop.
- 17—Limestone.
- 18—Flagstaff.
- 19—Silver.
- 20—Along the Gila River.

LETTERS

Call for Cutting Material . . .

Veterans Home, California

Desert:

Again I am calling on *Desert Magazine* readers for help.

Many of them will recall contributing cutting material to the Veterans Administration Hospital lapidary shop at Livermore, California, a few years ago. This writer started the shop as a form of occupational therapy.

The Livermore shop is now well-equipped and always busy. The many men and women patients who use it get a psychological "boost" from their interesting hobby work there.

I have recently transferred to the Veterans Home and, with the cooperation of commanding officers, have acquired a small room in which to install a lapidary shop similar to the one at Livermore. There are nearly 3000 men and women here, many of them active, who would enjoy such recreation.

We need cutting material. We would appreciate receiving supplies from rockhound readers of *Desert*—the best they can spare. We have plenty of jasper and agate, but anything else is welcome.

Send contributions to: Claude E. Napier, Veterans Home Gem and Mineral Club, Veterans Home, California, Post Office Box 72. Many here will thank you.

CLAUDE E. NAPIER

Swap Fun for Knowledge . . .

Shoshone, California

Desert:

I have a swap to suggest—and I think *Desert* readers will be interested.

Death Valley Union High School, located at Shoshone, California, midway between Baker and Furnace Creek Inn, is the smallest union high school in California. We have a total enrollment of 19 students and a staff of three teachers.

DVUHS offers both a college preparatory course and a general curriculum for students who do not plan further education. Because of our isolation, we feel that our students need the opportunity to develop contacts with people of other areas. For this reason, we have adopted our camping plan.

The students have constructed a campground for the exclusive use of individuals and groups who would be willing to contribute to the widening of our high school curriculum. The

campground is provided with stoves, tables, fresh water, firewood, rest rooms and a campfire circle complete with electrical outlets for showing slides and motion pictures. In addition to the campground, our guests will have the use of a warm water swimming pool and a tennis court. We will also provide student guides, if guests desire to see some of our Death Valley country.

In return for the facilities we offer, we will expect our guests to contribute in some way to our school curriculum. We hope to attract people who can instruct us in the fields of music, art, geology, nature study, crafts and industrial training.

Anyone who is interested in our camping plan is invited to write to us and let us know the size of the group, the contribution it can make to our students and the dates preferred for a visit.

Reservations may be made by writing to: Student Body Camping Director, Death Valley Union High School, Shoshone, California.

WALTER M. BYBEE
Principal

Water vs. Wilderness . . .

Ogden, Utah

Desert:

I have been an ardent reader of *Desert Magazine* for many years and have agreed with most of the opinions expressed in its pages. I must take exception, however, to your stand about preserving "a great wilderness area" from being covered with water by the proposed Echo Park Dam.

I do not disagree that a recreational area will be covered with water. But don't almost all dams cover some desirable land? The dams planned in Glen Canyon certainly will cover beautiful wilderness areas. The Echo Park Dam in reality will create a recreational area similar to that produced by Hoover Dam.

The water that these projects will make available to the people of Utah and surrounding areas is needed now. Water means productivity for the desert.

AARON B. ROSS, M.D.

Wilderness vs. Water . . .

San Bernardino, California

Desert:

Of the two factions which are arguing over the construction of the proposed Echo Park Dam, one could be called the reclamationists, the other, the preservationists. I have sentiment for both groups.

Yes, a dam at Echo Park would bring water to dry lands, power to industry and certain benefits to the

wildlife and game commission. But to have these things, others must be sacrificed.

"Graveyard of the Dinosaurs" in the December issue of *Desert Magazine* discusses the problem of the preservation of all that would be inundated were the dam to be built.

Between 1938 and 1941, I worked for the Bureau of Reclamation. A good part of the time I spent on the Green and Yampa rivers, assisting in preliminary investigation of the Echo Park, Split Mountain and other dam sites up and down the river.

We took a lot of pictures. The country was wild and beautiful. I saw my first mountain sheep at Echo Park as well as deer and smaller animals. Pictographs and historical inscriptions abound in the area. There are many small caves which hold ancient Indian artifacts.

Many people have roamed that region throughout the years—Jedediah Smith, Butch Cassidy, Major John Wesley Powell, the early railroad engineers who left their stakes on the ledges to mark the Salt Lake-Craig railroad, and hundreds of others.

At one spot above the river, carved in sandstone, I found the initials "J.S. 1838" and presumed they were carved by Jedediah Smith. They had been carefully inscribed, designed to stand for many many years as witness to his visit. I would hate to see them covered by water or destroyed in any way.

It is fascinating country, that land roamed by dinosaurs a million years ago. Its scenery is breathtakingly beautiful, its history and geology rich with interest. I hope someday to see it again, and to find it as I remember it.

EINAR H. STRAND

Indian Songs and Chants . . .

Medford, Oregon

Desert:

Last summer I purchased a number of back issues of *Desert Magazine*. Among them was the October, 1949, number with the story, "Chants of My People," about Manuel and Alyce Archuleta of Albuquerque, New Mexico. The Archuletas were making recordings of the different Indian songs and chants, the story reported, and hoped to establish a good business selling them.

It was such a lovely little story that I read it many times, and then wrote the Archuletas a letter which brought me data on the records available together with a nice note of appreciation.

Other *Desert* readers may be interested in knowing the records may be ordered from Tom-Tom Records, Box 1493, Albuquerque, New Mexico.

LUCILLE SANDALL

The Immune Indian . . .

Los Angeles, California

Desert:

First question in *Desert Magazine's* January true-false quiz, claiming in its answer that a rattlesnake cannot strike unless coiled, is in error.

I personally witnessed an Indian catch a rattlesnake as it was crawling out of his way, grabbing it about 18 inches from its head. The snake struck backward hitting the Indian's forearm about four inches above the wrist and making two tiny punctures in the skin. He instantly subdued the snake by holding it behind its head.

I wanted a closer look at the snake wound. Approaching the Indian, I saw a drop of venom on the punctures. The wounds did not bleed; there were only tiny red specks where the fangs had entered. The Indian took a small stick about the size of a match and raked the poison off. He said there was enough to kill five men.

The Indian was not affected by the snake venom. He was a professional snake catcher and had been immunized as a boy.

ALBERT LLOYD

For Better Flapjacks . . .

Fresno, California

Desert:

Studying the picture of Dude Sands and his burro Judy winning the flapjack contest (February *Desert*) a probable factor contributing to their success is readily seen. Mixing some of those delicious Ruskets from the now-empty carton on top of the firewood into his batter would insure a superior product, appetizing to both man and beast.

Whatever precious seconds which might have been lost starting the fire or mixing and cooking the flapjacks would be more than regained by his burro's eagerness to gobble up the finished product.

Out of personal experience eating various foods while camping, I highly recommend that every desert traveler include Ruskets in his camp grub.

ROSS THOMPSON

And Keep It Loaded . . .

Julian, California

Desert:

I will agree with you that the desert is safer than a highway, but never about throwing away the gun, as you advised F.J.H. in the February issue of *Desert*. I have been a prospector most of the time since 1916 and would no more think of starting out without a gun than I'd think of starting out without coffee.

I believe you published something about the rabid coyote at Agua Caliente Hot Springs. I was there, and I

don't know what would have happened if we hadn't had a gun in camp. I have shot rattlesnakes from Mexico to Oregon.

Mr. H. must be a tenderfoot if he doesn't know that snakes hibernate in winter. All I ever wear on my feet are oxfords, but I keep my eyes and ears open. I have been over a lot of the country that F.J.H. contemplates exploring and have never yet seen a snake there. I am old now and have settled down to feed the birds and wild animals who visit my desert home.

You can throw away your gun if you want to, R.H., but my advice is to take one along.

NELLIE F. GOODENDORF

For Sand-locked Cars . . .

San Clemente, California

Desert:

Late one afternoon I was driving alone on a seldom used trail in the Mojave Desert. At a sharp curve my rear wheels skidded off the road and I was stuck in the sand. There was

no solid footing for a jack, and deflating the tires didn't help. There wasn't a house within miles. It looked like a night on the desert for me.

Then I remembered a friend telling me how some Indians had extricated his car from a mud flat on the Klamath River with a device they had called a Spanish windlass.

Luckily there was a stout Joshua tree a short distance to the rear of the car. I tied the end of a rope to the rear bumper. Finding a sturdy Joshua log about ten feet long, I lashed another rope to its center and secured the other end to the tree. Holding the log erect, midway between tree and car, I wound the rope loop from the bumper around the center of the log and then, using my shovel handle through the loop as a lever, I kept twisting the log. As the ropes wound upon it the car was pulled back onto some brush I had placed in its path. It wasn't long before I was on my way home.

FRANK B. RUTLEDGE

Prizes for Photographers

"Desert Valentine" was the title of E. Foster Scholey's photograph which won first prize in *Desert's* January, 1951, Picture-of-the-Month contest and appeared in the March issue. It is an unusual shot of a cluster of desert hyacinths blossoming against the heart-shaped end of a fallen log. This is the type of photograph which wins prizes each month for the camera fans.

This is a good time of year to photograph flowers. But there are many other eligible photo subjects—from Animal life to Zuni Indians, anything of the desert Southwest. Remember, judges emphasize good composition, unusual subject matter and sharp contrasts of black and white.

Entries for the April contest must be in the Desert Magazine office, Palm Desert, California, by April 20, and the winning prints will appear in the June issue. Pictures which arrive too late for one contest are held over for the next month. First prize is \$10; second prize \$5.00. For non-winning pictures accepted for publication \$3.00 each will be paid.

HERE ARE THE RULES

1—Prints for monthly contests must be black and white. 5x7 or larger, printed on glossy paper.

2—Each photograph submitted should be fully labeled as to subject, time and place. Also technical data: camera, shutter speed, hour of day, etc.

3—PRINTS WILL BE RETURNED WHEN RETURN POSTAGE IS ENCLOSED.

4—All entries must be in the Desert Magazine office by the 20th of the contest month.

5—Contests are open to both amateur and professional photographers. Desert Magazine requires first publication rights only of prize winning pictures.

6—Time and place of photograph are immaterial, except that it must be from the desert Southwest.

7—Judges will be selected from *Desert's* editorial staff, and awards will be made immediately after the close of the contest each month.

Address All Entries to Photo Editor

The Desert Magazine

PALM DESERT, CALIFORNIA

Here and There on the Desert...

ARIZONA

Studies "Blessing Way" . . .

ST. MICHAELS — If a Navajo holds to his religion, he always will live in a hogan, the traditional dome-shaped Navajo home, regardless of how wealthy he may become. Strict rules for the type of home he must live in and the way he must live are set down for the tribesman in the Blessing Way ceremony. Rev. Berard Haile, OFM, who has lived with the Navajos for 54 years, has just completed the first study of this ceremony on which these Indians base their lives. Ready for publication, it is written in Navajo with an English translation and fills two lengthy volumes. In general, the Blessing Way is a prayer—which may last for days—for a blessing on the Navajos and their property. It may be compared to the Christian Bible, according to Father Berard, in that it contains most of the precepts of Navajo daily life. The 80-year-old priest next hopes to study the Chiricahua Wind Way ceremony. — *Phoenix Gazette*.

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Need Wedding Records . . .

WINDOW ROCK — To qualify them for social security benefits, Navajo couples, whether they were wed in civil ceremonies or according to tribal custom, must have a marriage record. In 1940, the tribe resolved to register all marriages, but there still are many widows and children on the reservation who are entitled to benefits but cannot get them because the women were never listed as married. Social security agents explained the situation at a Tribal Council meeting, and the tribesmen adopted a resolution calling again for registration of all marriages and adopting a program of telling the Indians of the importance of such action. — *New Mexican*.

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Indian Water Claims Mount . . .

WASHINGTON — Water claims from the Colorado River and its tributaries in the lower basin on behalf of Indians and Indian tribes now total 747,170 acre feet, with requests for ultimate development to 1,747,250 acre feet. The claims were contained in intervention action of the government in the pending case of Arizona vs. California in the U. S. Supreme Court. Most generous previous estimates placed total Indian claims at not more than 500,000 acre feet. The figures are based on estimated flows. — *Holbrook Tribune-News*.

Institute for Cloud Study . . .

TUCSON — Clouds as a possible untapped water resource in the arid Southwest will be studied intensively in a scientific research program operated jointly by the University of Arizona and the University of Chicago, officials of the two universities announced. Establishment of an Institute of Atmospheric Physics at the University of Arizona at Tucson, initially manned by University of Chicago scientists, is aimed at determining how much the future development of dry regions throughout the world can be enhanced by efforts to stimulate additional precipitation. Radar, cameras and balloon instruments will be used to observe the behavior of clouds in the Tucson area. Later laboratory tests and field measurements will be made in other areas. Other problems of the atmosphere, such as the possibility of utilization of solar energy received in the bright sunshine of Arizona, problems of the high atmosphere and related topics, will receive future study. All aspects of Arizona water problems will come under scrutiny. Clouds and rain possibilities will be the main interest, initially, however.

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Cheer TB Progress . . .

WINDOW ROCK—Normally stical Navajo leaders cheered wildly when told of the startling success of a two-year fight against the tribe's number one killer—tuberculosis. "We now have new hope," said Councilman James Besenti after the Tribal Council calmed down. The demonstration — unprecedented for a council meeting — started following a report by Dr. Walsh McDermott of the Cornell University School of Medicine. Dr. McDermott told the council that of 100 patients admitted to the hospital at Fort Defiance last year, not one died. He contrasted this with a record of about 80 deaths in every 100 admissions in 1948. In addition to patients at Fort Defiance, 300 Navajos are receiving treatment at hospitals in Arizona, New Mexico, Colorado and California. — *New Mexican*.

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Grand Canyon Approach . . .

PHOENIX—Bids have been issued for construction of a new Grand Canyon approach road which would enable tourists to get their first look of the canyon from Mather Point. The road will begin 1½ miles east of Grand Canyon village and extend south 4.8 miles to connect with existing new construction. — *Yuma Daily Sun*.

Hard Rock Shorty

of Death Valley



"Ain't no way o' tellin' how hot it gets here in Death Valley," Hard Rock Shorty was explaining to the tenderfoot. "They don't make the thermometers tall enough. On these hot summer days the mercury goes to the top o' them—an' then the thing busts.

"Them thermometers usta aggravate Pisgah Bill. He liked to write back to the editor of his ol' home town paper in Missouri an' tell 'im how hot it wuz in Death Valley. But with all the thermometers busted he could only guess at it — an' nobody would believe him.

"Finally Bill got an idea. He went over in Nevada where they have that big quicksilver mine, and mooched enough quicksilver to make a thermometer of his own. This one wuz to be so tall it would register any temperature this side o' hades.

"He sent to a mail order house and got a long glass tube to put the mercury in—an' then Bill's scheme ran into trouble. Takes a lot o' 'rithmetic to figger out where to put the marks on one o' them thermometers so yu'll know how many degrees hot it is. An' Bill never got any further'n the third grade in school.

"So he stowed all the gadgets he'd got together back in one of his old mine tunnels to wait 'til some scientist came along to show him how to finish the job. Finally one o' them Cal-Tech fellers showed up, and when Bill told him about it he said sure, he'd help.

"But when Bill went tu git the mercury an' the tube, he found the tunnel'd caved in. The mercury wuz buried under a hundred feet o' rock, an' the tube probably'd been smashed to smithereens.

"So we still don't know how hot it gits in Death Valley."

THE DESERT TRADING POST

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ADAMS GOLD: 5 years research, 5 trips, landmarks perfect. Have located pumpkin patch. Want partner by April 1. M. Anderson, 1464 Redondo Beach Blvd. Gardena, California.

DESERT TEA. One pound one dollar postpaid. Greasewood Greenhouses. Lenwood, Barstow, California.

NEW CALIFORNIA State Topographic Map 64x90" \$2.50. Lost mines of 10 Southwestern states, with map \$1.75. Sectionized County maps: San Bernardino, Riverside \$1.00 each, Inyo, Mono, Kern, Los Angeles 75c each. Imperial, San Diego 50c each. New series of Nevada County maps \$1.00 each. Joshua Tree-Twenty-nine Palms area \$1.56. Township blanks, all sizes. Lode or Placer location notice forms 5c each. Topographical maps in California, Nevada, Utah, Arizona and all other Western states. Westwide Maps Co., 114½ W. Third St., Los Angeles, California.

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CALIFORNIA

Plan Patton Memorial . . .

INDIO — Riverside County supervisors have established a commission that will create a memorial for General George Patton whose troops were trained in the desert areas of the county. The committee's chairman is Supervisor Homer Varner of Indio, whose district takes in land on which General Patton's soldiers trained for the African campaign of World War II. It has not yet been decided what form the memorial will take, but Varner favors a small park, well equipped with water and shade, alongside the Indio-Blythe highway.—*Desert Sun*.

Overdue Funeral Held . . .

MOJAVE — Funeral arrangements were made in February for a man dead 21 years. Bakersfield Coroner Norman Houze said it took 19 years to find the bones of Claude Yake and two additional years to identify them. Yake, a prospector, was last seen alive in 1933 when he stepped out of a hotel at Randsburg after telling the desk clerk he was going out for a drink of water. He was then about 38 years old. Yake may have walked out on the desert and become lost, Houze theorized. The bones were found by another prospector January 6, 1952, in a wash between Ridgecrest and Mojave.—*Los Angeles Times*.

Promise Park by Fall . . .

INDIO — Newton Drury, chief of the state division of beaches and parks, has given assurances that the long-delayed Salton Sea State Park will be fully opened by next fall, although construction of camping and picnic grounds, scheduled to have begun in September, 1952, still hasn't been substantially started. According to Drury, the state department of architecture is working on installation plans and should be ready to advertise for bids this spring. "Even with delays during summer heat, the park should be ready for full operation in fall and winter," he said.—*Desert Sun*.

Plans Salton Sea Swim . . .

PALM SPRINGS—Ray Carmasie, swimming instructor at the El Mirador Hotel here, hopes to become the first man to swim across the Salton Sea. Carmasie planned an attempt for the aquatic record early in March, as a conditioner for proposed swims across the straits of Gibraltar, the English Channel and a round trip swim to Catalina and back. He planned to enter the sea opposite Fish Springs resort. The opposite shore is between 10 and 15 miles distant.—*Indio Date Palm*.

Consider Spear Fishing . . .

MECCA — Spears and bows and arrows may be allowed to take mullet and carp from Salton Sea, if hunting and fishing regulations proposed by the department of fish and game for 1954 are adopted. Chukar partridge hunting, prohibited since the birds were introduced in 1930, also may be permitted for the first time. Other than these two innovations, the 1954 regulations were only slightly modified from those adopted in 1953.—*Calexico Chronicle*.

More, Better Camps . . .

INYO — Public camp grounds throughout the Inyo National Forest will be in better shape this year, thanks to generous government appropriations and a special \$10,200 allotment voted by Congress last summer. According to W. S. Davis, National Forest supervisor, the funds are being used for the construction of new camp tables and rest rooms, the repair of existing camp facilities and water systems, digging of garbage pits, rock-barrier construction and other needed improvements.—*Inyo Register*.

Outdoor Housekeeping . . .

CATHEDRAL CITY—"Help Keep Our Desert Clean" is the motto of the newly-formed Desert Outdoor Housekeeping Association of Cathedral City. On its first clean-up day, held in February, volunteer workers from nearby desert towns turned out to pick up trash and debris from alongside Highway 111 between Cathedral City and Indio. Sandwiches and punch were served to workers between hauls. The California Division of Highways assisted by assigning trucks to pick up trash piled at 500-foot intervals along the road. Riverside County Supervisor Homer Varner, chairman of the group, reports the clean-up day was the first in a long-range program to restore desert areas to their natural beauty.—*Desert Sun*.

Claim 75 Million Acres . . .

WASHINGTON — Scheduled to come up before the Indian Claims Commission is a case involving millions of dollars sought by California Indian tribes as reimbursement for lands allegedly seized from their ancestors. Claims of the Indians cover 75,000,000 acres of the total state acreage of 103,000,000 acres. Descendants of the Indians who were ejected from their lands by earlier settlers are basing their claims for reimbursement on treaties entered into by federal officials of the time which were not ratified by the Senate under its treaty-making powers.

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Homestead Tract Reopened . . .

TWENTYNINE PALMS — Jack-rabbit homesteaders in the Joshua Tree-Twenty-nine Palms area received word recently from the Navy Department that 172,640 acres of government land which was informally withdrawn from entry last March has been made available for homesteading again. The fight for such action, led by the High Joshua Desert Association, has been going on for nearly a year. The acreage involved lies close to the U. S. Marine Corps 600,000-acre installation near Twentynine Palms. The Navy said its action was to protect the base's water supply. However, a U.

S. Geological Survey study showed the continued withdrawal to be unnecessary. Applications from 3000 persons who wished to establish five-acre recreation homesteads were held up by the Bureau of Land Management because of the Navy's action.—*Los Angeles Times*.

NEVADA

Lake Mead Development . . .

BOULDER CITY—Under proposals now under consideration by the National Park Service, present regulations at Lake Mead National Recreational Area would be relaxed to allow private development of residential areas along the lake shore. Among other proposals are better navigation aids, now dangerously inadequate; greater public use of lands bordering Lake Mead; termination of present exclusive contracts prohibiting competition in providing proper commercial concessions; development of sports areas near the beaches; provisions for yacht club facilities for private boat owners; establishment and enforcement of proper safety and sanitary standards for concessionaires and opening of areas for private development of tourist facilities.—*Las Vegas Review-Journal*.

Hits State Cave Control . . .

RENO—Nevada Senator Pat McCarran has announced he will fight any action by the Interior Department to return Lehman Caves, Nevada's only national monument, to state control. The Interior Department was considering recommendations proposing the return of numerous national monuments, including Lehman Caves, to state control because they were "purely local in interest." McCarran said that Lehman Caves had visitors from 43 states and six foreign countries last year, with more than 30 percent of all visitors coming from states not bordering on Nevada. He added that any economy motive could not be supported, as the caves cost the federal government only \$8,000 in 1953. Congressional legislation would be required to authorize a change of control of national monuments.—*Las Vegas Review-Journal*.

Lake Mead Lodge Sold . . .

BOULDER CITY — Negotiations are under way for the sales of the Lake Mead Lodge and the boat operations on the lake by Frederick B. Patterson, longtime lessee. An agreement has been reached between Patterson and W. A. Porter, president of Continental Hotels and operator of the lodge for several years, for sale of the hostelry to the latter organization. Patterson also repossessed the boat operations from Edi Juan, operator, to sell the Overton operation to Bert Stevens and the Boulder Beach and Vegas Wash businesses to a Bakersfield, California, man. — *Las Vegas Review-Journal*.

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Desert Getting Hotter . . .

BLYTHE — According to O. W. Malmgren, Blythe weather station expert, the desert is getting hotter. Twenty years of figures compiled by Malmgren reveal temperatures have climbed upward since 1933. Twenty years ago the mean average was 70.05. In 1943, it was 72.6, last year, 72.8. Maximum average showed a rise from 88.7 in 1933 to 89.7 last year.—*Coachella Valley Sun*.

Fishing at Salton Sea . . .

MECCA — While most California anglers are holed up for the winter, others are camping out beside one of the world's strangest fishing waters and enjoying good catches. The California Department of Fish and Game reports that sportsmen have been landing many mullet and gulf croakers from the desert-bound Salton Sea, 237 feet below sea level. The mullet are natives, but the croakers were planted there by the department in recent years. A winter survey showed that the progeny of the original croaker plant have become abundant and are providing excellent salt-water fishing.

One of the strangest of angling sports is the catching of mullet with the bare hands. At this time of the year they may be driven near the shallow deltas of the Sea's tributaries and picked up legally by hand, hook and line or dip nets not over six feet in diameter.

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Mother Nature's Age Showing . . .

HENDERSON — Scientists have recently discovered that Mother Nature has been hiding her age all these years and that she is older than anyone thought or believed. Four scientists have figured that the earth is at least 4.5 billion years old. Previous estimates were 2.5 billion years. The new figure was the result of the study of two slightly different kinds of lead found in meteorites, the relative amounts of each giving a clue to the age of the meteorite. Uranium changes into lead at a known rate, and different kinds of uranium change at different rates. The difference in amounts of the two different kinds of lead found in the sample determine when it solidified into its present state. — *Las Vegas Review-Journal*.

Anchor Rock Slab Threat . . .

BOULDER CITY—A unique engineering job was recently undertaken at Hoover Dam, to anchor a 20-foot slab of rock which threatened the valve house. The 180-foot long by 115-foot high slab is immediately above the house on a sheer canyon wall. Scaling off the rock was considered, but abandoned in favor of the cheaper bracing operation. The rock was anchored by means of 350 two-inch wide steel bars of lengths up to 33 feet. The bars were inserted into drill holes with cement and water grout forced around them.—*Salt Lake Tribune*.

NEW MEXICO

Gallup Retains Office . . .

GALLUP—The Navajo area office of the Bureau of Indian Affairs will remain at Gallup, New Mexico, according to Glenn L. Emmons, commissioner of Indian affairs. The Albuquerque area office will be retained to administer affairs of the Pueblo Indians and other tribes. It had been proposed that the two offices be consolidated into a single office at Albuquerque. Navajos opposed the plan.—*Phoenix Gazette*.

Navajos Win Point . . .

ALBUQUERQUE—Penniless Navajos of New Mexico's "checkerboard" area have won part of their fight with the government over grazing rights on ancestral tribal lands. Jim Counselor, veteran New Mexico Indian trader and friend of the off-reservation Navajos, said that the Bureau of Land Management has agreed to increase the "free use" grazing allotment to small Indian stockmen from 50 to 100 head of sheep. "But we're not through fighting yet," he added. "We still are going to demand that an accounting be given of Indian land allotments and that

something be done about the 20,000 acres that were grabbed from grazing lands to make the Chaco National Monument." The BLM also agreed, Counselor said, to cease charging the Indians for the entire herd if the number of sheep went over the amount allowed free grazing rights. — *New Mexican*.

Sheep Hunt Successful . . .

LORDSBURG—New Mexico's first bighorn sheep hunt, held in the Hatchet Mountains of Hidalgo County, has been termed a "complete success" by State Game Warden Homer C. Pickens. Eleven of the 15 permittees killed their sheep. The hunt was held in an effort to cull older sheep from the herd and was the first bighorn hunt ever held in the state.—*Eddy County News*.

Flay Navajo Abuse . . .

GALLUP — Blasting Gallup as a place where "the flagrant abuse of the civil rights of Navajos is a matter of common knowledge," the Navajo Indian advisory committee appealed to Gallup business men for more cooperation and understanding between Indians and whites. "Gallup has many fine citizens," said Navajo Tribal Chairman Sam Ahkeah later, "and by pulling together in a united effort, the Navajos can be given a better deal."

Caverns Threatened . . .

CARLSBAD — Four sections of public land lying within the boundaries of Carlsbad Caverns National Park, put up for sale in January, were withdrawn by Land Commissioner E. S. Walker following a deluge of inquiries and protests. The land is the property of the New Mexico common schools. If the land were sold, the government, which has invested thousands of dollars in the park, may have to stop operations there. There is nothing in

the law that says rights for a hole in the ground can be reserved when a piece of property is sold. Mineral rights can be withheld, but not much else. It is hoped that the schools will be able to trade their land for some equally valuable property outside of the park boundaries.—*New Mexican*.

Navajos Back Project . . .

SHIPROCK—Officials of the Navajo tribe have given their backing to the big four-state Upper Colorado River development plan. Sam Ahkeah, chairman of the Navajo Tribal Council, said the proposed Shiprock and San Juan project units in northwestern New Mexico might irrigate as much as 129,000 acres of Navajo lands. "When the land is irrigated, it will make about 1500 farms of a size to support Navajo families," he said. "This means 1500 families—or about 7800 persons — will be supporting themselves directly from the project, will become self-sufficient and be able to live with dignity."



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Cowboys Bigger All Over . . .

SANTA FE—It isn't only in their feet that cowmen are bigger than they used to be. They're bigger all over, claims a buyer of Western clothes, noting a boot salesman's observation that the average Western boot is several sizes larger than it was in bygone years. Take pants, for instance. "The average rancher doesn't ride a horse as much as he used to," the buyer explained. "He uses a truck or a jeep. Result: his hips are expanding. Pants sizes now run 34 to 36." However, rodeo cowboys, who do a lot of the stiffest kind of riding, keep their weight down and wear a 30 to 33 trouser size.—*New Mexican*.

New Mescalero Super . . .

MESCALERO — Walter O. Olson has been appointed superintendent of the Mescalero Apache Agency, to succeed Lonnie Hardin, recently transferred to the Fort Apache Agency as reservation principal. Olson has been with the Bureau of Indian Affairs since he was graduated from the University of Idaho in 1940.

UTAH

Plan Dinosaur Development . . .

WASHINGTON — Details of the proposed \$21 million recreational development of Dinosaur National Monument—if and when Echo Park and Split Mountain dams are constructed—have been released by Secretary of Interior Douglas McKay. Plans include construction of 85 miles of roads, including access roads to scenic areas

as Harpers Corner, Buena Vista Park and Pat's Hole; construction of approximately 200 miles of trails; six camping, three picnic and seven beach areas; lodges for 400 guests plus accompanying facilities as restaurants and shops; one large marina in the vicinity of the main lodge and six smaller ones adjacent to camping areas, and a main and eight secondary museums which would exhibit excavated materials telling the archeological and geological story of the monument area.—*Vernal Express*.

Bridge at Mexican Hat . . .

MEXICAN HAT — Work on the steel arch bridge across the Colorado River at Mexican Hat is under way again after a year's delay due to a shortage of structural steel. The new bridge is being built near the old suspension bridge which was badly damaged last June. It is expected to be ready for travel sometime this spring.—*San Juan Record*.

Indian Freedom Bill . . .

WASHINGTON — Strong administration support has been pledged on legislation designed to end federal wardship of 353 Utah Indians in the Paiute and Shoshone tribes. The bill, introduced by Utah Senator Arthur V. Watkins, provides that members of the Utah bands would receive the proceeds from any sale of their lands now held in trust, which were estimated as worth about \$100,000. After a three-year conversion period, the Indians would get full citizenship. This would mean, however, the payment of local taxes on their lands, estimated at about \$5,000 a year, and the local governments assuming responsibility for health, education and welfare for the Indians. The legislation is opposed by the National Congress of American Indians which claims it would violate federal treaties with the Indians.—*Salt Lake Tribune*.

Shift Land Office . . .

SALT LAKE CITY—A new area field office of the Bureau of Land Management has been established at Salt Lake City as part of a reorganization plan of Secretary of the Interior Douglas McKay. H. Byron Mock, former regional administrator here, will head the new area office. The Albuquerque, New Mexico, regional office will be eliminated.—*Phoenix Gazette*.

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THE *Desert* MAGAZINE CLOSE-UPS

Jane Atwater, author of "Lost Wells-Fargo Gold" (p. 12), and her husband Adrian are inveterate collectors. Their collections of Indian artifacts (more than 5000 pieces), desert glass and rocks have grown so large, they are building a new home in Carson City, Nevada, to accommodate their many display cabinets.

Adrian is a photographer. He took the photos illustrating his wife's story and also won first prize in the February Picture-of-the-Month contest with his candid shot of the four Paiute Papooses, printed in this issue. A native of Bennett, Colorado, he received his professional training in the army and now is photographer for the Nevada State Highway Department. Mrs. Atwater is from Stockton, California.

As a young man, Lee Strobel, author of this month's Life-on-the-Desert story, had his troubles—like the struggle to make a living on his desert homestead and the battle with the jack-rabbits for his crops. But now he's making up for it with a life of ease.

Mr. and Mrs. Strobel are trailerites, taking their home with them as they travel about the Western states. They spend each winter on the desert near Palm Springs, California.

Not all the stories and feature articles which appear in *Desert Magazine* are written by professional writers. A majority of them are, it is true, but hardly a month passes that the editors do not buy one or more articles from persons who never before sold a manuscript for publication.

This is true of nearly all the Life-on-the-Desert stories now appearing each month. These were purchased during the annual Life-on-the-Desert contest held in 1953. Very few of these authors ever wrote professional copy before they sent their manuscripts to the *Desert Magazine*.

This month *Desert* is announcing a new contest in which inexperienced writers will have an equal chance with the professionals to participate in the prize money. This contest is to obtain stories of the success desert dwellers have had in attracting wild birds to their home. The winners of these awards will be persons who have had interesting experiences with the birds which live on the desert, and who are able to write down in plain simple English the story of their experiences.

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LOS ANGELES

GEMS and MINERALS

SECOND ANNUAL SHOW IN BRAWLEY, CALIFORNIA

Second Annual Gem Show and Trade Days of Brawley Gem and Mineral Society will be held April 30 to May 2 outdoors in the city plaza in Brawley, California. There will be ample room for camping, Secretary Glenora Barfell announces, and the camp area will be policed at night. An overnight field trip is planned to San Felipe, Baja California, to hunt for shells.

PLAN SPECIAL DISPLAYS AT GLENDALE GEM SHOW

One of the special exhibits planned for Glendale Lapidary and Gem Society's annual Gem Festival May 15 and 16 includes a water wheel, mill house and log cabin constructed of petrified wood by President Grant Ostergard. Other exhibits of lapidary and jewelry work and flower and driftwood arrangements will be shown. The festival will be held again in Glendale Civic Auditorium, 1401 Verdugo Road, Glendale, California. Doors will open at 9 a.m. and will close at 9 p.m. on Saturday, 7 p.m. on Sunday.

SHASTA SHOW IN APRIL

Shasta Gem and Mineral Society will hold its fourth annual show April 10 and 11 in the Veteran's Memorial Hall, Yuba Street, Redding, California. Hours will be from 10 a.m. to 8 p.m. Among featured exhibits will be a fluorescent show.

FIFTH ANNUAL YERMO GEM AND MINERAL SHOW

Fifth annual rock, gem and mineral show of Yermo, California, will be held April 17 and 18 at the grade school in Yermo, announces "Calico Fred" Noller, chairman. The show is the only one of its kind sponsored by a chamber of commerce. Guided field tours are planned as well as sunrise services Easter morning at the foot of the Calico Mountains.

A permanent exhibition of minerals and gems found in the region has been placed in the lobby of the Washington Hotel, Weiser, Idaho, by the Weiser Chamber of Commerce and the Salmon River Gem Club. Lower Valley, Hell's Canyon and Salmon River areas are popular hunting places yielding agate, petrified wood, garnet, sapphires and copper, lead, silver and tungsten ores. The region also provides good hunting for arrowheads, spearheads and stone tools of ancient Indian tribes.

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SHOW IN SAN JOSE

Ninth annual show of San Jose Lapidary Society will be held April 24 and 25 at the Woman's Clubhouse, 75 South Eleventh Street, San Jose, California.

SOUTHWEST MINERALOGISTS ANNOUNCE APRIL SHOW DATES

Show Chairman Jack Lasley has announced that the 1954 show of Southwest Mineralogists will be held April 10 and 11 at the Palestine Masonic Temple, 41st Place and Figueroa Street, Los Angeles, California. Gordon Bailey is exhibit chairman. The dates were changed from May 15 and 16 to avoid conflict with other rockhound events.

LOS ANGELES LAPIDARY SHOW COMING MAY 1, 2

Los Angeles Lapidary Society and the Southwest Art Association will join efforts to present another show featuring lapidary and jewelry displays and oil paintings. The show will be held May 1 and 2 in the auditorium of Van Ness Playground, 5720 Second Avenue, Los Angeles, California. Hours will be from 10 a.m. to 10 p.m. Saturday, from 10 a.m. to 6 p.m. Sunday.

"Petroleum was known in the Orient at least 2000 years ago," Dr. Paul Miller told members of the Mineralogical Society of Arizona when he addressed the group at a meeting in Phoenix. He traced the history and uses of petroleum.

SAN JOAQUIN VALLEY'S SECOND ANNUAL SHOW

Second annual San Joaquin Valley Gem and Mineral Show, sponsored by Calaveras Gem and Mineral Society, Lodi Gem and Mineral Society, Mother Lode Mineral Society and Stockton Lapidary and Mineral Club, will be held April 24 and 25 at the San Joaquin County Fair Grounds, Charter Way and Sharps Lane, Stockton, California. Exhibits will be housed in the main fairgrounds building.

TACOMA AGATE CLUB ROCK SHOW IN APRIL

Tacoma Agate Club's rock show will be held April 3 and 4 at the Community Center in Tacoma, Washington, announces Joe Harbaugh, show chairman. Hours will be from noon until 10 p.m. Saturday and from noon until 8 p.m. Sunday. Pendants and other items cut and polished by club members will be sold.

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RADIOACTIVE ORE Collection: 6 wonderful different specimens in neat Redwood chest, \$2.00. Pretty Gold nugget, \$1.00, four nuggets, \$2.00, choice collection 12 nuggets, \$5.00. Uranium Prospector, Box 604, Stockton, Calif.

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

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THE BELEAL'S Ironwood Rock Shop. Specializing in fire agate. P.O. Box 542, Highway 60-70, 7 miles from Blythe, Cal.

Mrs. Vivian Dosse, an authority on collecting and preparing thumbnail specimens, displayed her collection of mineral specimens at the February meeting of Delvers Gem and Mineral Society, Downey, California.

"Quartz Night" was held recently by Nebraska Mineral and Gem Club, Omaha. A photo quiz, asking identification of specimens shown in colored slides, opened the program. Mrs. Bertha Minardi discussed quartz in her talk which was followed by two films, "Crystal Clear" and "Coaxial and Micro-wave Miracles." Quartz specimens filled the display case at the meeting.

Archeology interest group of the Earth Science Club of Northern Illinois planned a combined laboratory and lecture meeting for February. Topic of discussion was "Problems in displaying for the Public Exhibits in Archeology, Geology, Paleontology and Related Sciences."

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New Officers Making Plans for Gem Society Activities

At its annual banquet and rock show in February, members of Sequoia Mineral Society, Kingsburg, California, installed officers for the 1954 season. J. L. McCreary of Reedley is new president; C. O. Sorensen of Selma, vice-president; Ann Shoetker of Orosi, secretary; Mabel Andersen of Parlier, treasurer, and Joseph Johnstone of Orosi, federation director.

Contra Costa Mineral and Gem Society activities will be led this year by the following officers, elected at a recent meeting in Walnut Creek, California: Harry Fletcher, president; John B. Phillips, vice-president; Eleanor Learned, secretary, and Vaughn Smallwood, treasurer.

At a regular meeting held in the Turn Verein Hall, Sacramento Mineral Society elected a new slate of officers. Dermond d'Arcy was named president; Martin Colony, vice-president; Genevieve Colony, recording secretary; E. E. Pook, financial secretary; Luther Ford, treasurer; Laura Krueger, librarian, and Lillian Coleman, director. Past President George Winslow automatically became federation director.

A. J. Paul will wield the presidential gavel at this year's meetings of Wasatch Gem Society, Salt Lake City, Utah. On his board are T. H. O'Neal, vice-president; Mrs. W. H. Saylor, secretary; K. O. Stewart, treasurer; Henry T. Fisher, Stewart Romney, Dr. B. D. Bennion and Howard A. Hanks, directors.

Mrs. Vera Archer will lead activities of Dona Ana Rockhound Club, Las Cruces, New Mexico, in 1954. Assisting President Archer will be Vearl Hooper, vice-president; Mrs. Oleta Becker, recording secretary; Mrs. Bea Letcher, corresponding secretary; Charles A. Moore, treasurer; Mrs. Lesla Markley, historian; Mrs. Selma Jones, reporter, and Mrs. Lois Olinger, editor.

Master Sergeant George Zurian is new president of El Paso Mineral and Gem Society, El Paso, Texas. On his board are E. S. Dye, vice-president; Mrs. Kathleen Miller, secretary; Emil J. Mueller, treasurer; Mrs. Hortense Newell, historian; Harry L. and Grace Zollars, bulletin editors. George Miller, retiring president, was named trustee.

Installed at the February meeting of Old Baldy Lapidary Society, Pomona, California, were newly-elected officers Joel O. Bowser, president; Jimmie Rittenhouse, vice-president, and Catherine Rittenhouse, secretary-treasurer.

James A. Moore was named president of San Diego Lapidary Society in recent balloting. Other officers who will help steer the club's activities in 1954 are Johnny Underwood, first vice-president; Lee Weatherbie, second vice-president; Erma Underwood, secretary; F. V. "Tex" Oliver, treasurer, and Bill Runnels, historian.

At its first meeting this year, Indiana Geology and Gem Society of Indianapolis elected Francis M. Hueber president; Lester R. Sparks, vice-president; Florence Geisler, secretary; Mrs. Fred S. Smith, corresponding secretary, and Fred Smith, treasurer.

Yuma, Arizona, Gem and Mineral Society will be piloted through 1954 by the following officers, elected in January: Joseph Baker, president; Anthony DeCrescenzi, vice-president; Mrs. Ferrer Detrek publicity chairman and secretary-treasurer; Dick Brown, trek chairman, and Mrs. D. Monica Baker, parliamentarian.

Eugene Mineral Club of Eugene, Oregon, has elected Walter Howes president for this year. Other new officers are Roger Bale, vice-president; Mrs. Stanley Jamison, secretary; F. O. Rosencrans, treasurer, and Mrs. Walter Dennis, Northwest Federation director. Much of this spring and summer's club activity will be concentrated on producing material to be shown at the Northwest Federation show in Eugene next Labor Day.

Newly-installed officers of San Francisco Gem and Mineral Society are Dr. George Bates, president; Ed F. Grapes, vice-president; Walter Eyestone, treasurer; Kenneth W. Hinkle, secretary, and Alden Clark, Cecil Iden, Henry Reinecke and Ivor Welch, directors. Appointive offices will be filled by Mrs. Mildred Wurz, librarian; Robert White, curator, and Mrs. Ruth Merwin, hostess.

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Gerald Backus, field trip chairman of Compton Gem and Mineral Club, Compton, California, plans 1954 field trips to Lead Pipe Springs, Lucerne Valley for garnets, Calico Mountains, Crystal Mountain near Quartzsite, Arizona, Mesa Grande and Willow Creek. In March, the society plans to visit the California Federation convention in Indio.

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The history of cinnabar in California, its mineralogical specifications, crystallization and California locations, were outlined for the Gem and Mineral Society of San Mateo County, California, by Gordon I. Gould. Cinnabar was first discovered in California in 1845 on the property now known as the New Almaden, Gould said. California now produces about 85 percent of the country's total supply.

"Gold Deposits of Georgia" was the feature article in the winter issue of the *Georgia Mineral News Letter* published by the Georgia Geological Survey. The story was illustrated with photographs and with a map of the state's gold deposits.

Four young rockhounds tied for first place in a recent junior mineral identification contest sponsored by Colorado Mineral Society, Denver. Prizes were awarded to Brian Silver, Marsha Wells, Don Wallace and Elvin Carroll.

Mrs. Gladys Babson Hannaford spoke on "Diamonds, Their Origin, Sentiment, Tradition and Use" when she appeared as guest speaker on a Pasadena Lapidary Society program. She illustrated her talk with samples of rock in which diamonds are found, the rough and polished stones, the industrial diamond, replicas of famous diamonds and colored pictures of diamond mines.

Evansville Lapidary Society, Evansville, Indiana, celebrated its first anniversary at the January 30 meeting.

In breaking up small rocks for polishing in a tumbler, Emil Muller and Harry Zollars of El Paso Mineral and Gem Society suggest using a small rock crusher such as are used by mineral assayers.

"What Would Rocks Be Without Rockhounds," was the title of Florence Dutton's talk to Coachella Valley Mineral Society, Indio, California. David MacKaye also spoke, tracing with colored slides the history of man's use of stones.

Castle Butte was visited by members of San Fernando Valley Mineral and Gem Society on a January field trip.

Appointed officers for 1954 have been announced by San Antonio Rock and Lapidary Society, San Antonio, Texas. Arthur Lawson was named historian; Bob McBride, librarian; E. W. Immel, field trip chairman.

Lee Robinson discussed Indian artifacts at the January meeting of Marcus Whitman Gem and Mineral Society, Walla Walla, Washington. He displayed trays of arrowheads, many of them made of high grade gem material—carnelian, chalcedony, agate, bassanite, jasper and petrified wood.

A quiz program was conducted at a recent meeting of the Oklahoma Mineral and Gem Society, Oklahoma City. Alvin Markwell acted as master of ceremonies and asked questions of contestants. A correct answer won a quartz crystal for the contestant, and for each succeeding correct answer he could exchange his prize specimen for a larger one. A miss and he forfeited his prize.

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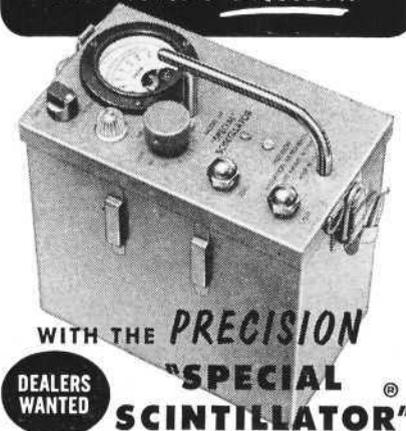
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John Gabelman discussed pegmatites for Wasatch Gem Society, Salt Lake City, Utah.

Jasper, agate and clear calcite were sought on a recent Southwest Mineralogists field trip to Afton Canyon, California.

"Come stump the experts," read invitations to the February meeting of East Bay Mineral Society, Oakland, California. Dr. Francis T. Jones led a panel including R. E. Lamberson, Robert Chisholm and Dr. C. W. Chesterman, guest speaker. They promised to try and identify any puzzling rocks members might present.

Edward Soukup combed the bookstalls looking for an instruction book to recommend to his beginning faceting students. He found none, so he wrote his own. The book, *Elementary Faceting Instructions*, is being published by the San Diego Lapidary Society, of which Soukup is a member.

Hundreds of specimens exchanged hands at the annual auction of Colorado Mineral Society in Denver. Jack Britton, auctioneer, announced a net of \$109.20 after sales taxes were deducted.

Meral W. Hinshaw took members of the Mineralogical Society of Southern California, Pasadena, on a colored-slide tour of the diamond mines of South Africa. He discussed methods of sorting and processing the diamonds and some of their industrial uses.

Dr. Robert Norris told how he conducted his mineralogy classes when he appeared as guest speaker on a Santa Barbara Mineral and Gem Society program.

January field trip of Clark County Gem Collectors, to the Park onyx field near Spearhead Mountain, was attended by 51 members and guests.

Minnesota Mineral Club has appointed a hospitality committee to welcome and assist new members and visitors at meetings.

Three movies formed a recent evening program for San Francisco Gem and Mineral Society: "Silversmithing," "Death Valley National Monument" and "Miracle Flame," the story of natural gas.

A colored-slide trip down the Colorado and San Juan rivers was presented by Georgia White at a meeting of Los Angeles Lapidary Society.

Geology and surface features of the Chicago region formed subject matter for Dr. Leland Horberg when he appeared as guest speaker on an evening program of the Earth Science Club of Northern Illinois. He showed how the region looked before the glacier came, how the glaciers changed the topography and how the nature of the underlying rock strata affected the change.

Main entertainment feature of Chicago Rocks and Minerals Society's eighth annual birthday meeting was a color film on Navajo and Zuni handicrafts.

Following a Valentine motif, the cupid-decorated February issue of *Long Beach Mineral News*, bulletin of Long Beach Mineral and Gem Society, was mimeographed in red ink.

Mineralight Makes Rich Tungsten Find in Nevada

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—Ira C. Lambert.

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—Wm. H. Baldwin.

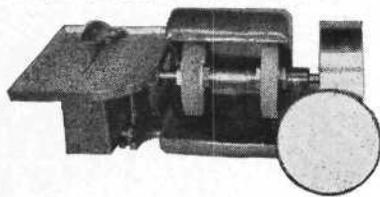
"This is without doubt one of the world's major deposits of Scheelite...would probably never have been discovered without a Mineralight."
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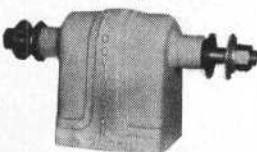
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HERE**



**WE HAD
FUN!**

**WE HAD
PERMISSION.**

**WE OBSERVED GROUND RULES
AND LEFT A CLEAN CAMP.**

Deciding it was "high time something was done" about cleaning up the favorite desert campsites of gem and mineral collecting groups, Compton Gem and Mineral Club of Compton, California, had a number of these signs made. One is left at each field trip site, as a record of the club's honorable use of the campground and as encouragement for other groups to leave clean camps.

"For each carat of diamond, 20 tons of material must be moved," Speaker James Coote told members of Hollywood Lapidary Society. He gave tips on how to shop for a diamond.

LAPIDARY SHOP PLANNED TO SHOW VISITORS HOW

A working lapidary shop is planned as one of the feature attractions at the Delvers Gem and Mineral Society annual show May 8 and 9 in Downey, California. Exhibits will be seen in the community building of Simms Park in Bellflower, California. Doors will open at 10 a.m. and close at 10 p.m. on Saturday and 8 p.m. on Sunday.

At a recent meeting, Humboldt Gem and Mineral Society, Eureka, California, discussed the proposed Tri-County Gem and Mineral Show. Plans are for three shows, one each in Humboldt and Del Norte counties, California, and Curry County, Oregon, with societies from all three counties participating in each.

"Up From the Bed of a Desert Sea," a film on potash, was shown at a recent meeting of Dona Ana County Rockhounds, Las Cruces, New Mexico.

Milton Arbetter was invited to appear as guest speaker at a meeting of San Antonio Rock and Lapidary Society.

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AMATEUR GEM CUTTER

By LELANDE QUICK, Editor of The Lapidary Journal

There are now about 500 gem and mineral clubs throughout the country and the number is growing daily. People are attending the shows in all sections of the land and they return home to get together with a few other kindred souls interested in some form of the rock hobby and organize a club. It has been said that there isn't anything that is destructible or that has outworn its usefulness, for when it becomes junk to the original owner it becomes a collectors' item to someone else. And then when someone collects an item he soon finds others who collect and thus a club is formed to pool common interests and knowledge.

But rockhounding has so many facets of interest that several phases are combined in the purpose of one club. In the Pacific Coast area we find that gemcutting is the chief interest of the rockhounds while in the mid-west fossil study leads and in the east we find the really serious student of mineralogy.

Most of the clubs now have some kind of a notice about their meetings and many of these notices have evolved into bulletins that are, in many cases, highly informative and capably edited. A great many of these bulletins come to us but we haven't the time to read them through from cover to cover. We always look for one thing however and that is information about the program. To our dismay we fail to find in some of them what the program is going to be or what the program of the previous meeting was about. We think that the perfect bulletin is one that reports some highlights of the program of the previous meeting and then does a lot to promote interest in the program for the coming meeting.

We find that many societies are failing to be realistic about their purposes. They were all organized in the beginning to promote one thing—knowledge of the earth sciences. When they fail to teach they should quit meeting at all. The promotion of friendship and the blessing of breaking bread together are worthy adjuncts but they should not be paramount in groups organized for scientific study.

While it is true that no club is any stronger than its leadership we have seen some very successful clubs with weak leadership but only because they had a hard working and imaginative program chairman. We have always said that the program chairman was the most important job in a gem and mineral club.

We have something important to offer the program chairman, in the hope that we are instrumental in promoting some highly interesting programs for some of the clubs. Just now we are engaged in writing a list of 100 programs for clubs for the Rockhound Buyers Guide. A survey of hundreds of bulletins indicates that the audience participation type of program is the one that draws the largest attendance and creates the greatest interest.

The leader in the participation type of program is the auction night. Members are urged to bring in some of their surplus rocks and donate them to the club. These are then auctioned off to the highest bidder and the club's treasury is enriched. The best way to conduct this program is to have the person donating the rock indicate on a piece of paper, fastened to the bottom of the rock, the lowest price he thinks it should be sold for. All of the rocks are spread on

long tables so that persons can examine them by handling them. The tables should be set up at least an hour before the meeting is called. This gives everyone a chance to examine the rocks at close range and make his selection and he knows the minimum price that the rocks of his selection will fetch. This makes it easier for the auctioneer. That important individual should be a combination of a wit, a salesman and an authority on the rocks he is selling. Some groups have two or three auctioneers who spell each other and compete in getting in the money.

The next most popular program is one that we promoted years ago and that is the "braggin' rock night." Everyone who has any rocks at all certainly has a favorite; one that he likes the best for a special reason and the special reason usually is a good story. These rocks too should be spread out upon a table before the meeting so that everyone can get a close look at them. This program gets all the club members on their feet and it is amazing how successful such a program can be. The answer is obvious—if a member hasn't one rock he is proud to tell about he ought to resign his membership and quit wasting his time.

Nothing tops the audience participation type of program like an old fashioned spelling bee. This program needs some good prizes and the prizes are usually a selection of books on mineralogy, gemology or gemcutting. A selection of words relating only to mineralogy or gemology should be made by the spelling master. These selections are easily made from the *Dictionary of Gems and Gemology* by Shipley, and Chambers' *Mineralogical Dictionary*. It is wise to have a list of at least two hundred words for such a program and the membership should be advised to study their spelling weeks before the meeting is held. Have two leaders choose sides or else have the ladies oppose the men if they are about equally divided. Emphasize at the start that the meeting is intended to embarrass no one for many people would like to enter a contest but they fear embarrassment. The spelling master should be selected for his tact as well as his personal knowledge.

There is a participation program that is immensely popular if the group contains a considerable number interested in faceting. Hold a potato night. Every member brings a couple of potatoes, a large sack for parings and a paring knife. A faceter from the group explains the procedures for faceting the standard brilliant. At a given point in his talk each member is instructed to cut the top from his potato. He has then cut the table on his "gem." The other facets are cut in their regular order and all the finished "gems" are placed upon a table for judges to decide which are the best, and prizes are awarded. No lecture on faceting can teach as much as a group cutting potatoes.

A fifth participation type program is a "quartz night." Each member is urged to bring his finest quartz specimen and display it before the meeting. A club member then gives a lecture on the quartz family of minerals, for this group contains more than 90 percent of all the stones an amateur gemcutter will ever cut. It comes as a great surprise to many that among the

displays are pieces of petrified wood, dinosaur bone, moss and sagenite agates, many other agate types, jasper, clear crystals, amethyst, smoky quartz etc. They are all in the quartz family.

If you are a program chairman of a club and you carry through these five programs in the next five months you will not only make yourself so popular that you will be selected for the next president of your group, but you will have the high satisfaction of knowing that the members of your club will all leave with a greater knowledge of gems and minerals than when they started out to the meetings. Please pass the chocolate cake.

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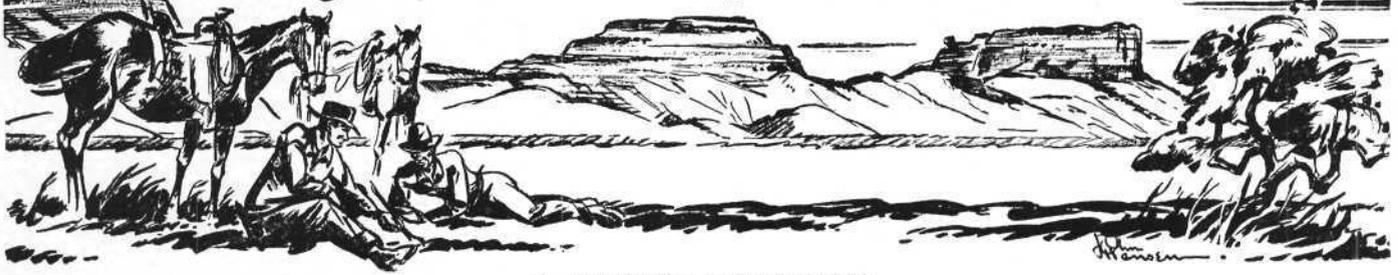
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Just Between You and Me



By RANDALL HENDERSON

ONE EVENING late in February I camped with members of the Sierra Club—the Desert Peaks Section of the Club—at the base of the Turtle Mountains not far from the Colorado River in California.

The wind was strong and we sought shelter by building our fires and spreading our bedrolls in a deep arroyo that drains the mountains. It is common, I know, in some parts of the desert to warn tenderfoot motorists against camping in the dry water-courses. In northern Arizona and other places where some of the dry rivers serve watersheds of great area, the warning is timely. But on the Mojave and Colorado deserts of California where the drainage basins generally are limited in extent, the camper can determine by local and distant cloud formations whether there is danger of flash floods. On much of the Great American desert during the last year there has been so little rainfall that the soil will soak up an inch of rain without appreciable run-off. In the upper Colorado River basin in August it is well to heed the warning.

The Sierra Club group had come to the Turtle Mountains to spend the weekend climbing Mopah Peak, a volcanic pinnacle which is a conspicuous landmark in that region. Around the campfire that evening the conversation turned to a common topic among mountaineers: Why do people climb mountains?

Many answers have been given to that question, and I do not know which of them is correct. But I am sure one of the contributing factors is that mountain climbers live in a bigger world, physically, than folks who spend all their lives without expending the effort necessary to scale the heights. Mountain-climbers live in a three-dimensional world—a world in which, within a comparatively short distance, they may become acquainted with the life zones ranging, in this desert region, from the Sonoran to the Arctic. On foot, with a knapsack, one has the opportunity to become intimately acquainted with a world in which Nature preserves an amazing degree of balance—a problem which we humans have not yet been able to solve in our own affairs.

* * *

As the political and economic affairs of mankind—the man-made problems—become more complicated and frustrating, thoughtful men and women are turning more and more to the world of Nature where the rules of life are inviolate, and where an intelligent faith is always rewarded.

Natural law is the basic law of the universe, and can be altered neither by legislators nor dictators.

And that is why *Desert Magazine* devotes so much space to Nature subjects. The better understanding we humans have of the works of the Creator, the less disturbed we will be by the frailties of the human species.

It is gratifying to me to announce this month the series of Nature articles by Edmund C. Jaeger who, if not foremost among teachers of desert Nature subjects, is at least outstanding among contemporary writers on these subjects.

Recently I had the privilege of accompanying Dr. Jaeger on a walk through the Wildlife Sanctuary now in process of being established by the Palm Springs Desert Museum. Within a distance of less than a mile and a half he had identified 60 species of desert plants—each with its own, and in some instances very amazing characteristics. When we came to the creosote bush he pointed out how jackrabbits had been trimming off the lower twigs of the shrub. Apparently the rabbits do not eat either the wood or the leaves of creosote—but for reasons which we humans do not yet understand the tender shoots had been bitten off and left lying where they fell.

We found desert mistletoe growing in a catsclaw shrub, and he asked me to crush one of the small berries between my fingers. The seed inside the fruit is covered with a glue-like juice which causes it to cling to beaks and feet of birds which eat the berries, and is able to cling and take root high up in the branches of the host trees for this parasite.

I hope the time will come when every desert community will have such a sanctuary as is being established near here by the Desert Museum. Foremost in the development of such outdoor classrooms should be the pastors of the churches. I am sure the effectiveness of their work would be more than doubled if, after they have taught the word of God from the pulpit on Sunday morning they would take their congregations out and give them a demonstration of the amazing works of the Creator in the afternoon.

One cannot live close to the world of Nature without acquiring a deep reverence for the Creator of all this world around us—and it really isn't important whether we choose to call Him God, Jehovah, the Great Spirit, or Allah.

* * *

From *The California Grizzly Bear*, magazine published by the California Native Sons, I clipped this quotation, written by Frank H. Benson: "I was reminded of the quotation inscribed across the front of one of the stately buildings of our State Capital: 'Give us men to match our mountains.' Never was the world more in need of such men—big men. Men who can rise above the petty and sordid things, men who will stand true and unyielding though the tempests of opposition shriek about them. The world is crying out for tall men, men who look out for the world from an eminence, whose vision is undimmed by partisanship, intolerance, greed or ignorance. Civilization must find such men."

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. . . a city of mud boxes, dingy and dilapidated, cracked and baked into a composite of dust and filth; littered about with broken corrals, sheds, bake ovens, carcasses of dead animals and broken pottery; barren of verdure, parched, naked and grimly desolate in the glare of a southern sun.

This was the Tucson of 1864 as J. Ross Browne saw it. Browne was a sharp-eyed journalist, artist and traveler who visited the frontier state and recorded in candid words and drawings its towns, Indians and white men, mining camps, legends, Indian attacks, desert and wilderness scenery.

Originally published in *Harpers New Magazine* in 1864 and in book form five years later as *Adventures in the Apache Country*, Browne's observations were recently published in modern edition by Arizona Silhouettes of Tucson as *A Tour Through Arizona*, 1864. The narrative is interesting and frequently shows the author's keen sense of humor. His drawings, too, are warm and at times amusing—as the self caricature showing Browne, pencil in hand and rifle and sketch pad across his knees, entitled "The Fine Arts in Arizona."

Published by Arizona Silhouettes, 292 pages, 72 ink drawings by the author. \$5.00.

GUIDE FOR COLLECTING, PHOTOGRAPHING INSECTS

Edward S. Ross, curator of entomology at the California Academy of Sciences, never quite outgrew his childhood curiosity for small living things. His small-boy fascination for bugs led to a career; to others it may point the way to a fascinating hobby.

Ross suggests how in *Insects Close Up*, "a pictorial guide for the photographer and collector."

The small paper-bound booklet, well organized and beautifully printed, includes 125 photographs and drawings which offer an introduction to the fascinating citizens of the insect world. How-to-do-it sections tell how to find, capture, preserve, mount, organize and label specimens and give tips on equipment and techniques for photographing live insects both in Nature and in the studio.

Seven of the excellent photographs are in color. Each species pictured is described in the scientifically accurate and very readable text. *Insects Close Up* presents a fascinating, complex

miniature world which the amateur can study as a hobby.

Published for the California Academy of Sciences by the University of California Press. 80 pages, \$1.50.

MOUNTAIN MAN'S STORY WRITTEN FOR CHILDREN

As his mother said, young Jedediah Smith had "fiddle-feet." They couldn't keep still. He loved every mile of his family's gradual journey westward from New York and longed to explore every blank spot in his dog-eared map of the West.

He finally had his chance, and how he used it is history. In *Young Jed Smith, Westering Boy*, Olive W. Burt tells the story of one of the greatest American explorers since Lewis and Clark and one of the greatest of the Mountain Men of the Western frontier.

Written for children. Published by Bobbs-Merrill Company, 192 pages, large, readable type, pen and ink illustrations by Harry Lees. \$1.75.

BOYS FIND ADVENTURE ON THE CALIFORNIA DESERT

Ronnie and Don found a whole new world when they went out to stay with a mining engineer in the California desert. A little man with a booming voice, Palito Jake took the boys on several expeditions over what first seemed like a dry and empty wilderness. But it turned out to be a fascinating country, full of new experiences, brilliant plants and flowers and unusual animals.

Ronnie and Don, by Lester Rountree, is an exciting adventure story for young boys and accurately introduces them to the fascinating desert land. A down-to-earth book packed with factual information boys love.

Published by The Viking Press, 160 pages, excellent ink illustrations by Don Perceval. \$2.50.

SIX QUICK SHOTS ARE BETTER THAN ONE

The Story of Colt's Revolver is the story of an invention, the history of an amazing family and the birth of a new manufacturing procedure, mass production.

Author William B. Edwards presents a voluminous biography of Colonel Samuel Colt and a comprehensive study of his greatest invention, the Colt revolver. The new and efficient repeating firearm had a tremendous effect on American history. Colts

at their hips, fighting Westerners, confident with six shots instead of one, blazed their trails across the plains. Handsomely engraved dueling sets graced the mantlepieces of Eastern mansions. In the Civil War, the revolutionary firearm became a major weapon in both handgun and rifle versions.

The book is well illustrated with clear photographs, drawings and diagrams.

Published by The Stackpole Company, 468 pages, 7¾x10½" in size; more than 200 illustrations, index, attractive end papers showing plan of Colt's armory. \$10.00.

ASKS HELP WITH BOOK ON BELIEFS, SUPERSTITIONS

Professor Wayland D. Hand of the University of California at Los Angeles, who is compiling a standard collection of California popular beliefs and superstitions, enlists the support of all people interested in California history and popular antiquities. A postcard addressed to him at U.C.L.A., Los Angeles 24, will bring free of charge a prospectus of the project and a check-list of several hundred superstitions representing all categories of popular belief.

Books reviewed on this page are available at
Desert Crafts Shop, Palm Desert

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Insects Close Up

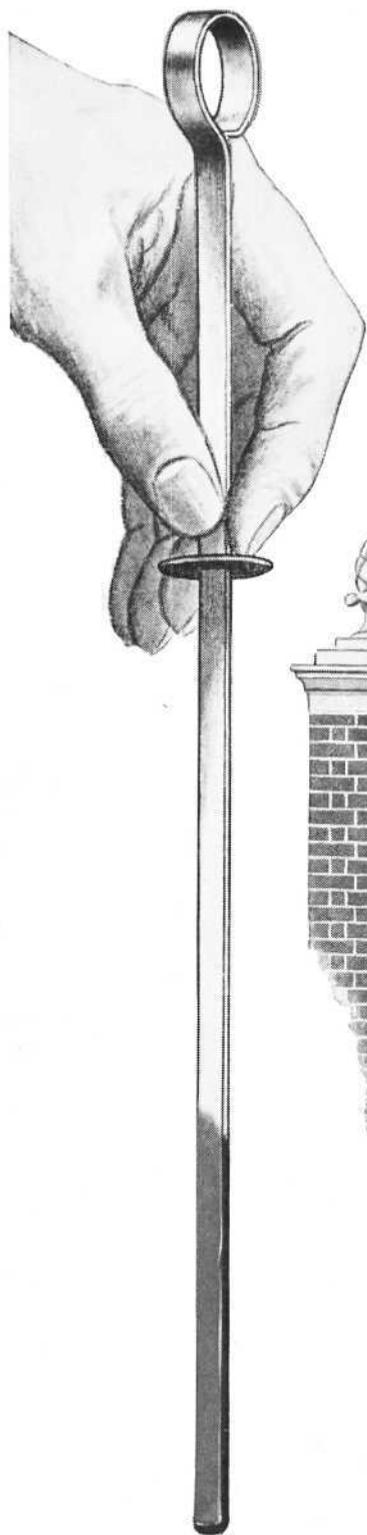
By EDWARD S. ROSS

Here is the guide to a new hobby—a study of the small crawling or hopping things which so fascinated us as children. Entomologist Ross introduces students of Nature to a broad and complex, intriguing miniature world.

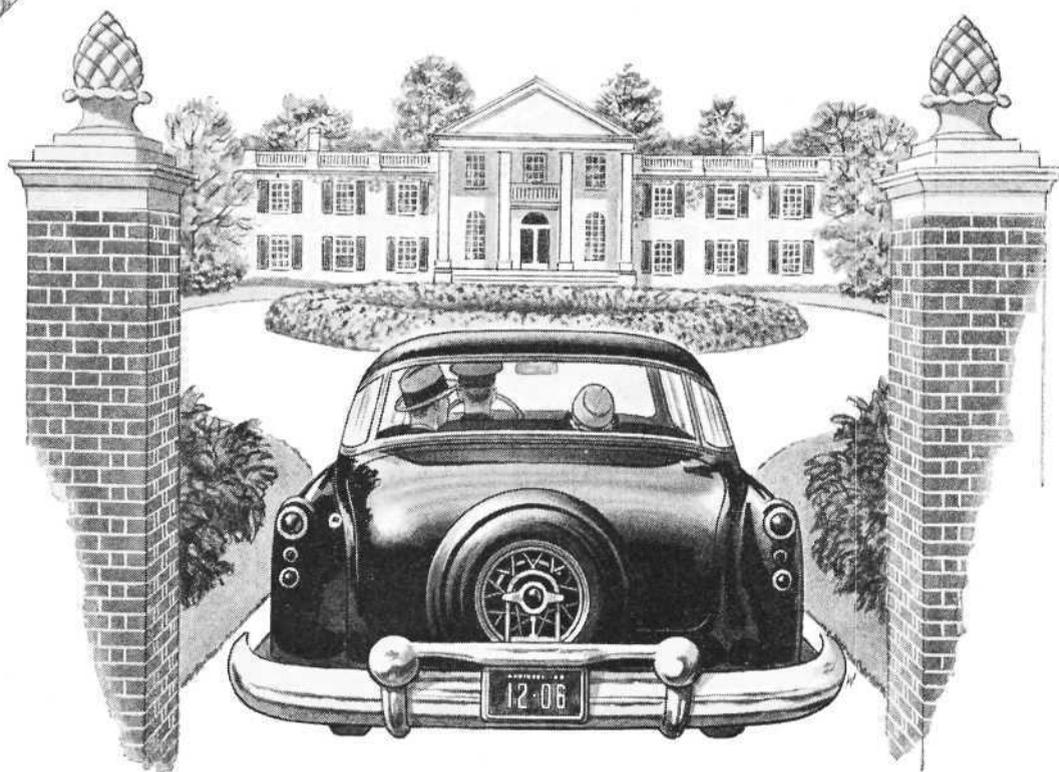
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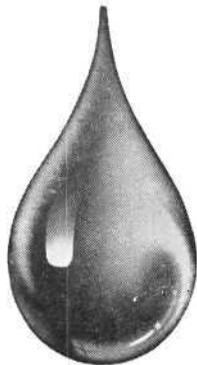
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