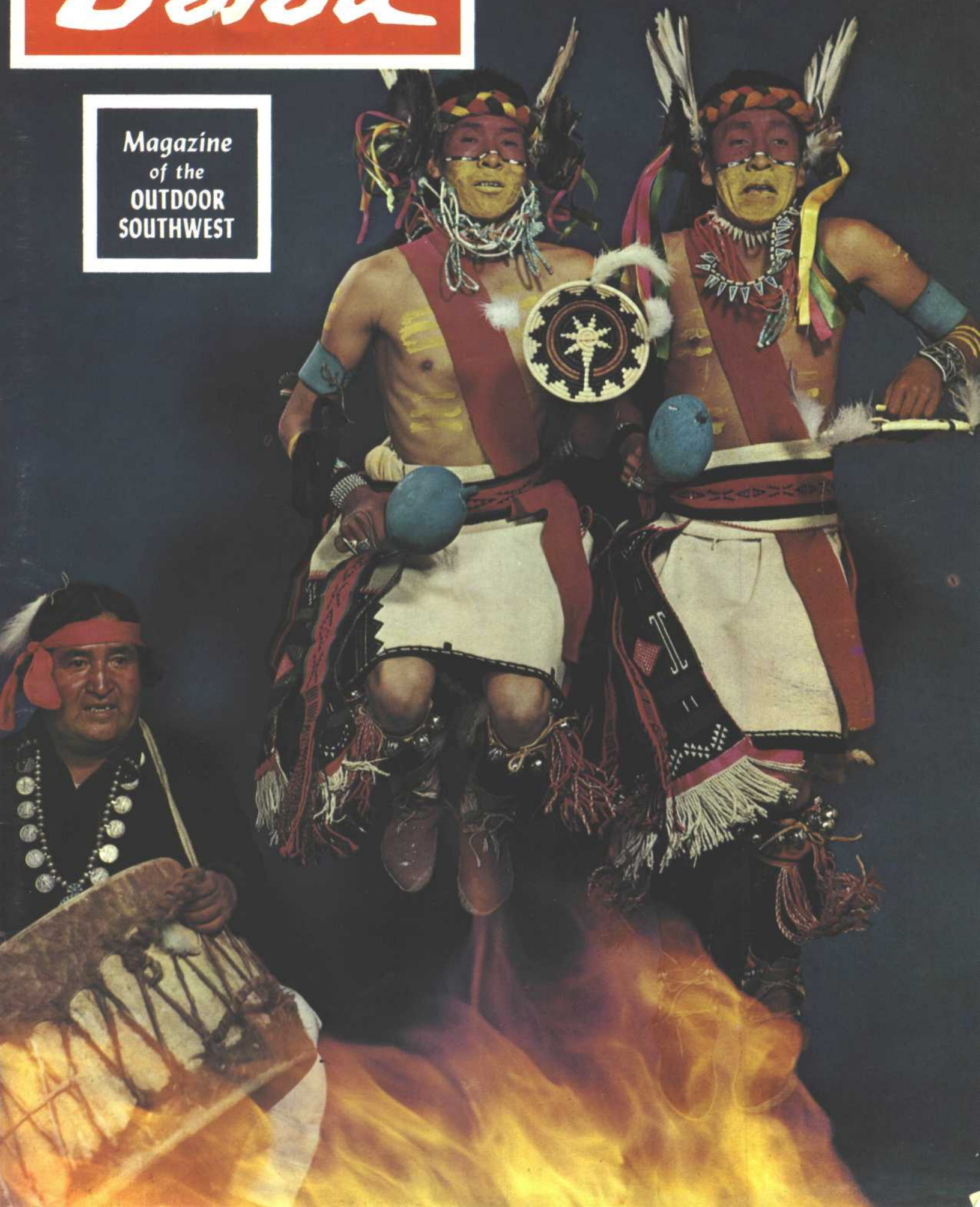


August, 1961 40 cents

# Desert

RM  
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Magazine  
of the  
**OUTDOOR  
SOUTHWEST**



# BACKSTAGE AT THE POW POW

20,000 Indian visitors  
head the cast at  
Flagstaff's annual July  
Fourth celebration—and the  
big show will be repeated  
this month at Gallup

By ELIZABETH RIGBY



FIRST TIME BEHIND THE WHEEL

THE CARNIVAL ADJOINING THE CAMPGROUND IS A POPULAR PLACE



THE OLD NAVAJO gestured in warning. We thought he was signalling us to move, and we could hardly blame him. We had driven within a few feet of where he sat on the ground beside a huge burlap sack, but this was the last visible parking space on the vastly crowded Flagstaff Pow Wow campgrounds and we desperately wanted to stay.

Backing up, I got out of the car to plead our cause, only to find that the old man's concern had been not for himself but for us. We had driven over a barely extinguished campfire and he'd thought the hot ashes would be bad for our tires! This he indicated in a mixture of broken English and sign language. Now that we were safe he was happy to have us stay, even showed us the contents of his sack—an assortment of roots, twigs, and leaves from a variety of different plants—explaining that he was a medicine man come from Lukachukai in the far northeastern corner of the Arizona reservation to serve any of his tribesmen who might fall ill at the three-day event.

He was one of several interesting people we met that afternoon as we wandered under the tall pines threading our way between weather-worn covered wagons and shiny new pick-up trucks, clusters of ground-seated cardplayers, laughing children, horses and mules tethered to tree trunks, and family groups dining happily on campfire-roasted mutton. (The Navajos like their meat tough because "it feels as though you are getting more to eat that way.")

One man, from whom we bought a fine watermelon, was an educated Hopi who had driven his produce all the way from the Colorado River country near Parker where he had recently resettled his family to take

—Continued on page 4



# Desert Skybirds

By ENOLA CHAMBERLIN  
Los Alamitos, Calif.

Desert noon is a mating peacock  
Crying his raucous cry.  
Flaunting his garish tail plumes  
In an arc across the sky.

Night is the poorwill's plum-  
mage,  
His lonely, haunting call,  
That plays on the harps of twi-  
light  
With nostalgic rise and fall.

But with the last stars dying,  
The moon paste-pale in the west,  
Dawn is a thrasher's flute call,  
Dawn is a thrasher's breast.

## PHOTO and ART credits

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Volume  
24

# Contents for August 1961

Number  
8

**COVER PHOTO** Cochiti Pueblo dancers perform at the Flagstaff Pow Wow (see story on opposite page). While the costumes are authentic, the sashes are Hopi-made; the Arizona Hopis make most of the sashes for their New Mexico pueblo cousins. Photograph by Charles W. Herbert of Tucson.

**2 FIESTA:** Backstage at the Flagstaff Pow Wow  
ELIZABETH RIGBY

**7 SUMMER TREK:** To the Top of Pinyon Ridge  
WALTER FORD

**9 SUMMER TRAVEL:** Southern Arizona's Cool Country  
WELDON F. HEALD

**10 METEOROLOGY:** What's Behind the Desert Mirage?  
ERWIN KAUPER

**12 ART:** Bettina Steinke of Taos, New Mexico  
W. THETFORD LeVINESS

**14 MINING:** The Story of the Drilling Contest  
LILLIAN NINNIS

**18 REMINISCENCE:** Corraling the Gila River Mustangs  
LYNN COOL

**22 ARCHITECTURE:** Fool-proof Picture Window  
CHARLES W. HERBERT

**24 NATURE:** The Unlovely Pocket Gopher  
EDMUND C. JAEGER

**28 ADVENTURE:** Power Scooters Through the Wilderness  
EUGENE L. CONROTTO

<b>DEPARTMENTS:</b>	Poem of the Month	3	Hard Rock Shorty	21
	New Desertland Books	5	Classified Ads	26
	Southwest Calendar	5	Editorial	43



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## BACKSTAGE AT THE POW WOW

(continued from page 2)

advantage of farming opportunities more favorable than those in the arid Hopi homeland. In thoughtfully chosen moderate words he told us, in answer to our question, how he felt about this somewhat controversial experiment; and the contrast be-

tween him and the ancient medicine man we'd first encountered, even as that between the wooden-wheeled wagons and the high-powered trucks all around us, spoke eloquently of the changes that are coming to these people today as, for better or for worse, modernity inevitably overtakes them.

At stalls erected for the occasion or at any vacant spot among the trees, we watched Indians from New Mexico or South Dakota spiritedly trading

with others from Arizona or Oklahoma for the wares in which each tribe specializes, and we came away with the feeling that some at least among them enjoy the bargaining as much as they do its results.

We stopped to admire a piece of pottery here, a handsome blanket or a striking bit of jewelry there. At one point we received a lesson in how to make jerky (we haven't tried it yet), at another we stood spellbound and amused by the dexterity of a Navajo mother who seemingly had no difficulty in manipulating her cards with one hand while holding her cradleboarded baby firmly with the other. By the end of the afternoon we felt as though we had traveled hundreds of miles in time and space, as indeed, in point of variety, we had.

Every year some 20,000 Indians from 30 Southwestern tribes and as many as 65,000 non-Indian visitors journey to Flagstaff, Arizona for the 4th-of-July All-Indian Pow Wow. For the Indians, the Pow Wow is a gay social event, a chance to meet friends from distant places, to attend the popular carnival, and perhaps to earn some money by the sale of hand-crafts.

Much of this backstage activity takes place at the teeming camp near the rodeo and dance arena. Here families set themselves up in what to them is comfort, although to some of us it might seem rough going. They have brought along their blankets, their provender, and their outdoor grills. They eat on the ground whenever they are hungry and sleep, whenever the mood dictates, in the covered wagons, in the backs of the trucks, under tents, or in rough enclosures hastily put up with scrap boards or metal. Here the skins of some freshly slaughtered sheep hang drying over a rope fastened to two ponderosa pines, there a woman is baking flatbread, and everywhere there is laughter and chatter as friends who have not met perhaps since the last Pow Wow come suddenly upon one another in the crowd.

For the non-Indian visitor, a stroll through the grounds can be one of the most fascinating parts of the whole affair, providing as it does a capsule view of Indian life for those who cannot take time to visit the remote reservations.

The drama is repeated—with many of the same actors—at Gallup, New Mexico, a month later. Dates for this year's Gallup ceremonial (40th annual) are August 10-13. ///



THE CAMPGROUND BLOSSOMS WITH COVERED WAGONS



# NEW DESERT BOOKS

## JOSEPH WOOD KRUTCH ON BAJA CALIFORNIA

Ever since a few hardy American travelers returned from Baja California with reports that they "ran into" naturalist-philosopher Joseph Wood Krutch examining the peninsula with notebook in hand, those who have been impressed with Krutch's significant writings (*The Desert Year*, *The Voice of the Desert*, *Grand Canyon*, *The Great Chain of Life*, to mention only his more recent volumes) have awaited with eagerness his impressions on Baja in book form.

The book is now here: *The Forgotten Peninsula*. Subtitle: "A Naturalist in Baja California."

Why should anything a naturalist writes about Baja California be "awaited with eagerness" by a wide assortment of readers, not all of whom give a hoot about nature *per se*? Because Krutch, his fans know, will present the summing up. His will be the last word (at least for as long as any of us care to consider). And Krutch will write about the peninsula from the refreshing viewpoint of what everything he saw down there means to life—human life. The man raises all manner of questions—and satisfactorily answers them.

The Baja California shelf in the library grows quantitatively each month. There are dark histories of the padres; books on travel; books on plantlife; books on adventure. Krutch touches on these subjects and others, and the net result is a book that makes the reader examine his own existence—even if he has never heard of Baja California—with new discernment.

Life in Baja California is an antithesis of "the American way of life." This explains much of the peninsula's lure for city-crowded, technology-ensnared Americans. To Krutch, there are valuable lessons to be learned in this great classroom just beyond our borders for both those who advocate

an acceleration of "progress," and those who would have us return to a pristine existence in league with nature.

Hardcover binding; 277 pp., halftone photos, map. \$5 from Desert Magazine Book Store (see purchase details in footnote).

## A MUST FOR DESERTITES: HOW TO COOL YOUR HOUSE

The hot bright summer sun is a major obstacle to comfortable Desert Southwest living. June through September are just plain hot.

Of course, mechanical air conditioners have revolutionized desert living. A flip of the switch is all it takes to refrigerate a house—or at least considerably reduce the interior temperature.

Unfortunately, many desert residents go no farther than the cooler switch, little realizing that there are some other tricks for shaving degrees from the home's interior temperature.

Sunset Books recently published a fine report, *How to Cool Your House*, in which are presented worthwhile suggestions on solving the heat problem with insulation, mechanical coolers, overheads, sunscreens and plantings.

The book deals first with the causes of overheating, and here several factors are investigated: The way the house sets on the lot, how it is designed, what it is made

of and what it is not made of, and what plantings surround it.

Vertical and horizontal sun shades can play an important role in counteracting the hothouse qualities of a structure. The ideas for screens and shades bounce off the pages of this book—there are all types and styles, from simple lath to elaborate scientifically-shaped louvers. But be forewarned: get your home workshop tools in order, for this book is sure to stir you into action.

Cooling with plant materials is an age-old device for beating the heat. *How to Cool Your House* tells us which plants do better than others in this regard. And the newest idea in keeping cool is presented here: installing fine mist spray nozzles in trees and other strategic garden locales to lower the temperature throughout the grounds. "A cool garden means a cool home."

Insulation and weatherstripping are two important climate-control factors homeowners should consider. *How to Cool Your House* goes into these subjects, as well as cooling with mechanical aids and mechanical ventilation.

There's something in this book for everyone who has lived through a desert summer, or who intends to. Those who plan to build homes in the Southwest should read *How to Cool Your House* before the structure is planned on paper.

Papercover; scores of halftone illustrations and drawings; 95 pages (8¼x10¼"); \$1.95. (See details below for purchasing this book by mail.)

Books reviewed on this page can be purchased by mail from Desert Magazine Book Store, Palm Desert, California. Please add 15c for postage and handling per book. California residents also add 4% sales tax. Write for free book catalog.

## Southwest Calendar

Aug. 3-5: National Burro Derby. Apple Valley to Big Bear Lake, Calif.

Aug. 3-5: Southeastern Utah Junior Livestock Show, Ferron.

Aug. 3-6: Shrine Circus, Reno.

Aug. 4-5: Annual Northern Arizona Square Dance Festival, Flagstaff.

Aug. 5: Smoki Ceremonials, Prescott, Ariz.

Aug. 9-11: 30th Annual Uintah Basin Industrial Convention — pageants, shows, tournaments. Roosevelt, Utah.

Aug. 10: Rockhounds' Day, Pioche, Nev.

Aug. 10-12: Sidewalk Days, Bountiful, Utah.

Aug. 13: Special Centennial Celebration, Bishop, Calif.

Aug. 13: Junior Chamber of Commerce Air Fair, Flagstaff.

Aug. 15: Uintah County Cattlemen's Association Round - Up, Vernal, Utah.

Aug. 16-20: Farmers Fair, Hemet, Calif.

Aug. 17-19: Cache County Fair and Rodeo, Logan, Utah.

Aug. 18-19: Davis County Fair, Kaysville, Utah.

Aug. 18-20: Annual Rodeo, Payson, Ariz.

Aug. 19-20: Pony Express Days, Ely, Nev.

Aug. 24-26: Box Elder County Fair and Rodeo, Tremonton, Utah.

Aug. 24-26: County Fair, Tooele, Utah.

Aug. 25-26: Rich County Round-Up Days, Rodeo, Randolph, Utah.

Aug. 25-27: Coconino County Fair, Flagstaff.

Aug. 26-27: Pony Express Days, Ely, Nev.

Aug. 27-Sept. 3: Centennial Celebration, Rodeo, St. George, Utah.

Aug. 28: Antelope Valley Fair Parade, 5:30 p.m., Lancaster, Calif. Fair runs through Sept. 4.

Aug. 1-22: Annual Music Festival, Provo, Utah.

Month of August: World's Record Speed Runs, Bonneville Salt Flats, Utah.

Late August: Ute Indian Bear Dance, Whiterocks, Utah.

Last two weeks of August: Hopi Snake Dances. For exact dates, send postcard to Winslow, Ariz., Chamber of Commerce.

... the one book  
those who love the Desert Southwest  
must have:

ED AINSWORTH'S

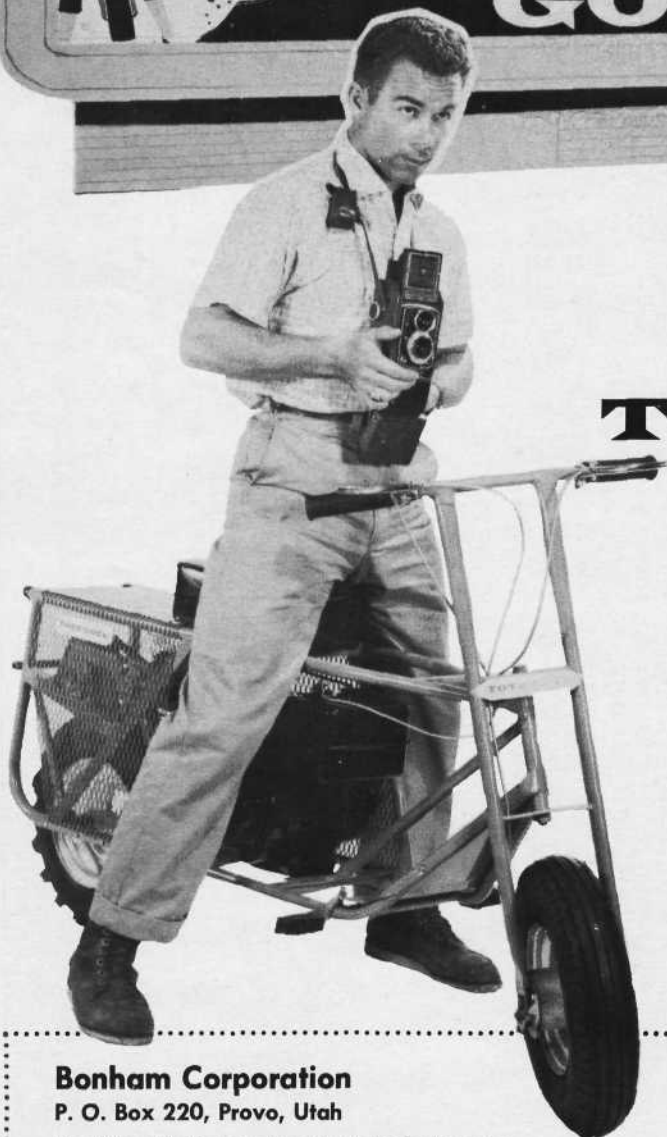
## "Painters of the Desert"

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# TO THE TOP OF PINYON RIDGE . . .

**4000 feet  
above the  
desert floor  
24 degrees cooler!**

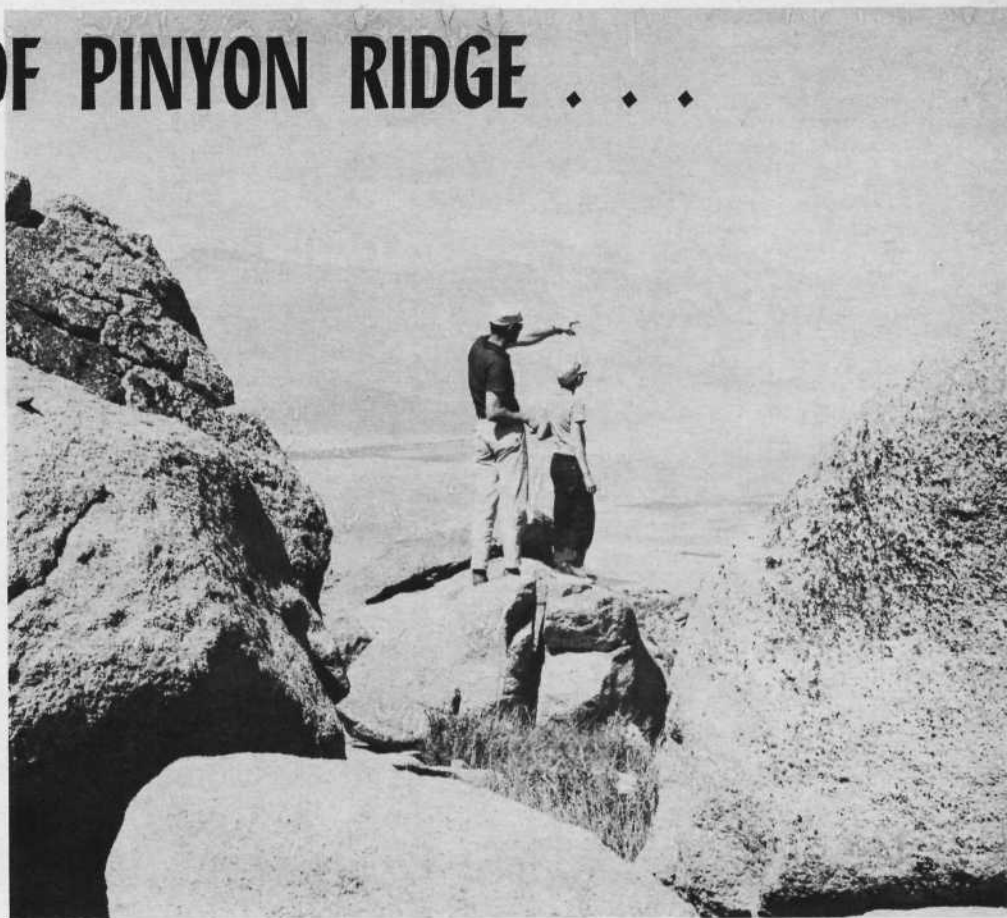
**W**HILE SUMMER is not the ideal season to roam the desert's hot floor, you can still pay your respects — at arm's length — by heading for a cool mountain peak at desert's edge.

That is what a group of us in San Diego who own four-wheel-drive vehicles did a few weeks ago. Actually, the trip had its beginning one day last winter while I was photographing wildlife at Yaqui Wells in California's Anza-Borrego desert. State Park Ranger Frank Fairfield, in charge of the Tamarisk Grove campground, stopped to pass a few friendly minutes. Frank is very familiar with the back-trails in this big country and in conversation that morning he told me about an intriguing trip along the top of the mountain high above Tamarisk Grove which was, in his opinion, a natural for four-wheel-drive enthusiasts.

The trip to Pinyon Ridge offered not only a sweeping panorama of the whole western section of the Colorado desert; it was a meeting place for desert and mountain vegetation rarely seen together.

Usually our four-wheel safaris are all-male affairs, but occasionally the feminine members of our families join in. The girls are pretty good travelers and adapt themselves to every inconvenience save one: above-normal temperatures. And so, Pinyon Ridge was the choice of our mixed-group summer trip.

The village of Ranchita near which the turn-off for Pinyon Ridge is located, can be approached from several directions. One road extends southeastward from Highway 79 a few miles southwest of Warner's Spring. Another route follows San



FROM THE TOP LOOKING DOWN

Felipe Canyon from Scissors Crossing to meet the road from Highway 79 mentioned above. A third road—the one we chose—leaves Highway 78 near the east end of Sentenac Canyon and heads north along a sandy wash through Grapevine Canyon.

Sentenac Canyon takes its name from Paul Sentenac who raised sheep in this area in the '80s. The remains of his stone house may still be seen on a small hill at the point where the

highway enters the canyon. While history has not recorded any events of particular significance in Sentenac Canyon, the area did register one "near miss." In 1853 a Railroad Survey Party under W. P. Blake was seeking a route to the Pacific Coast, and Sentenac Canyon was suggested as a possible course. But, no further action seems to have been taken. Blake, incidentally, is credited with



A COOL BREAK FROM HOT-WEATHER DRIVING AT THE FALLS IN SENTENAC CANYON

**By WALTER FORD**

naming the Colorado Desert and ancient Lake Cahuilla which once covered the present Salton Basin. Around 1885 Collins P. Huntington sent a survey party into the desert to select a route for the projected Southern Pacific Railroad. San Diego businessmen failed to boost the Sentenac passage and Los Angeles became the western terminus of the railroad.

Half-way through Sentenac Canyon, a bridge crosses San Felipe Creek. On the south side of the road, water cascades over a series of falls, then enters a pool beneath the bridge. Some canyon travelers are not aware of this little oasis—a delightful place for a cooling-off break.

The Grapevine Canyon turn-off is on the north side of the highway just after it emerges from Sentenac Canyon a short distance south of the roadside rest station. Grapevine Canyon is posted with a park sign and is easily located. The road is along a sandy wash, and although it follows a winding course, its name was derived from grapevines that formerly grew in the area and not from twisting turns. Bits of pottery scattered about and the numerous grinding holes in the rocks give indication that at one time the region supported a large Indian population.

In the days before a road was cut through Sentenac Canyon, Grapevine Canyon was one of the main routes between Warner's Ranch and Imperial Valley. The late Colonel Fletcher of San Diego is credited with building the first automobile road through the canyon. Some historians have stated that the purpose of Fletcher's road was to establish a stage line between Brawley and Warner's Ranch, but Ed Fletcher, who made the first trip over the road in an automobile with his father in 1924, told me that the road was built to make automobile travel between the two points possible.

On account of the large number of cattle grazing in Grapevine Canyon, travelers should close all gates behind them. And in the interest of safety, it is advisable to travel at a low rate of speed, since cattle are apt to emerge from the dense vegetation onto the road rather unexpectedly.

Both Angelina and Stuart Springs supply a quantity of good water. The latter empties into a porcelain-lined bathtub, and you wonder how and why this bathroom fixture was diverted from its original purpose to serve as a watering trough for cattle. One of the reminders of early-day traffic through the canyon is a highway sign on the side of the road in-

dicating distances to water in both directions—and pointing up the importance of Stuart and Angelina springs to travelers during the pioneer auto era.

As the road rises out of Grapevine Canyon, it passes the workings of the abandoned Dewey Mine and contin-



**WATERHOLES WERE IMPORTANT TO PIONEER MOTORISTS IN GRAPEVINE CANYON**

ues on to the Warner's - Ranchita Highway. Here we turned east on the paved road and traveled 2.9 miles beyond the Ranchita postoffice and store where some wheel-tracks branch off to the south. When we were there the ruts were not very distinct, but undoubtedly additional travel since has made the turn-off easier to locate. (Another check point is the park sign on the south-side of the highway about 2.6 miles east of the store. The turn-off is about a quarter mile beyond the sign.)

The road winds through brush-

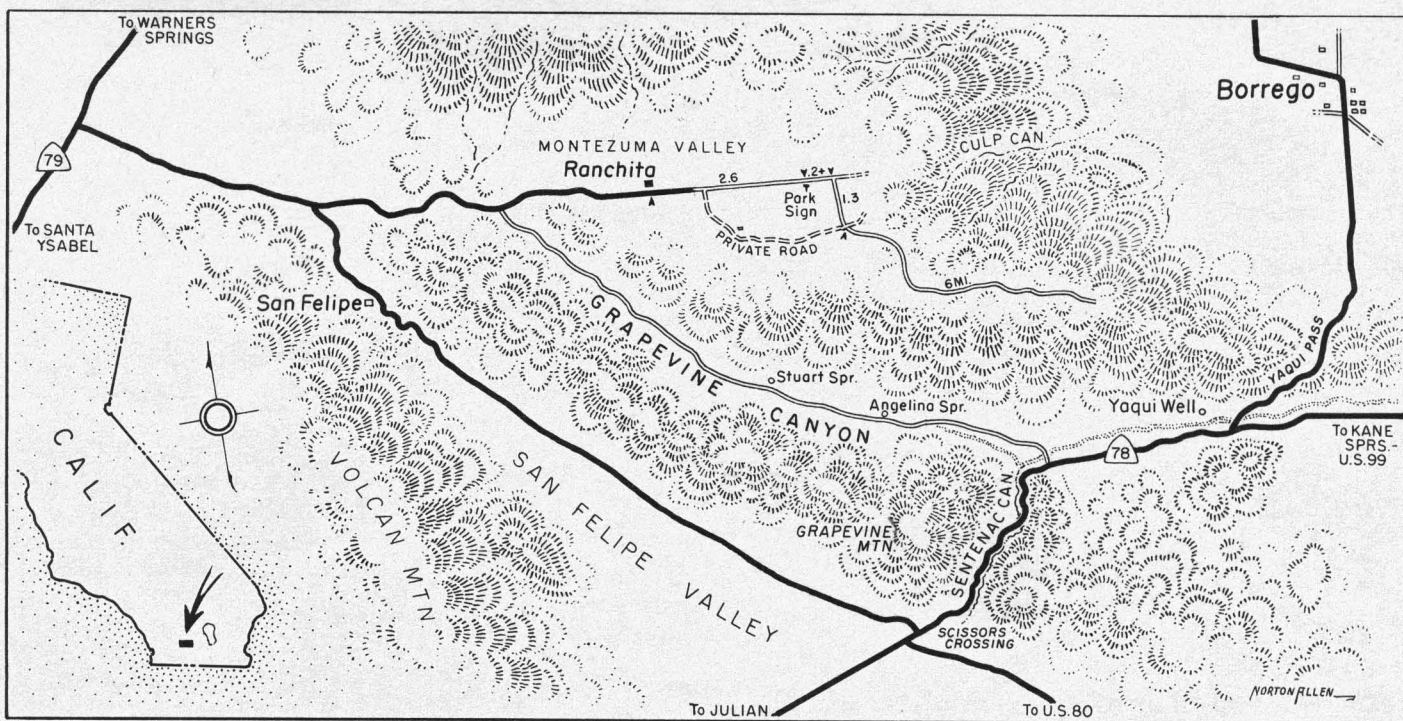
covered flatland for 1.3 miles, then joins the trail which passes through the Wilson Ranch, and continues on to Pinyon Ridge. We turned left at the road junction and traveled eastward 0.4 mile to a large juniper tree where we stopped for lunch. According to our timetable, we had expected to be at the top of Pinyon Ridge by noon, but we had tarried too long in enjoying the trip through Grapevine Canyon. It is unwise to tie your plans too rigidly to the hands of a clock when mapping desert trips. Fixed schedules belong to the free-ways.

After we left our lunch site, the road began to wind upward over brush-covered terrain, diminishing occasionally to two faint wheel-tracks. From then on it was strictly four-wheel-drive with frequent shifting down to the compound-low gears. At times if it were not for the flattened vegetation we might have missed the way completely. As we climbed higher, we began to appreciate more fully Ranger Fairchild's enthusiasm over this trip. When the distant scenery began unfolding before us, we were able to look down upon the tops of some mountains that previously we had known only from following the trails around their bases. The vegetation through which we journeyed was a mixture of both mountain and desert plants, the one descending and the other moving upward — with neither "army" seemingly giving ground.

One of the three four-wheel-drive vehicles in our caravan was a station wagon with the standard tread. Fairchild had warned us that there was a place near the top of the ridge where a station wagon could not get through. We decided to take it as far as possible, then shift the station wagon passengers to smaller cars. As we moved upward, the road got rougher. But being the barrier for the station wagon was not pin-pointed on my map, we drove through several steep, narrow pitches and thought we had licked the trail when we came to a rock-covered stretch at the top of which was a small crack between two huge boulders. This was the end of the trail for the station wagon, but fortunately the top of the ridge was but a few hundred feet beyond.

The road passes through a tree and shrub-covered valley lined by rock ridges on two sides. One end of the valley opens to a vista of the desert immediately below and eastward as far as the eye can see. A short climb to the ridge at the north-side of the valley provides a sweeping panorama of the mountains and desert





where the Borrego Badlands appear as a vast yellow sea.

Elevation of our perch was over 4000 feet. A thermometer placed in the open registered 74 degrees. Borrego Valley, directly below, reported 98 degrees for the same day.

Pinyon Ridge is a natural sanct-

uary for wildlife. Among the birds that we were able to identify were phainopeplas, rock wren, jays, hummingbirds, hawks, and roadrunners. We saw a little kit fox slinking through the undergrowth, and far down a slope we spotted a pair of bighorn sheep—a rare and rewarding sight!

And then—all too soon—it was time to retrace our steps down the mountainside and back into the hot country. Pinyon Ridge has much more to offer than a 24-degree differential in temperature, but it is strictly a trip for “four-wheelers.” To attempt to reach it by standard car would be dangerously futile. ///

## A Guide to Cool Country In Southern Arizona ...

An August Travel Suggestion by Weldon F. Heald

**W** E SOUTHWESTERNERS are fortunate in having plenty of escape hatches from the summer heat. For most of us, cool pine-scented days and blankets at night are within easy driving distance. In fact, there are many places where our blistering sun can be exchanged for Canadian climate in an hour or two. Sometimes the transition is so rapid it's breathtaking.

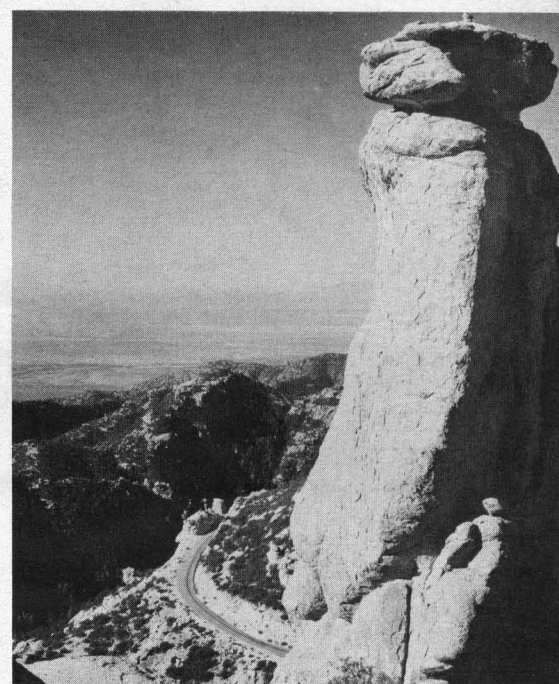
Arizona's southeastern corner is particularly well equipped in this respect. There, half a dozen isolated mountain ranges, 8500 feet to nearly 11,000 feet elevation, rise abruptly from desert valleys and rolling grasslands to cool green oases in the sky that resemble bits of Oregon strayed far from home. They are varied and fascinating in scenery and bird, animal and plant life, and they offer unique summer outings for those looking for quiet, unspoiled vacations away from crowded resorts.

These surprising ranges carry aloft 600 square miles of magnificent coniferous forests and aspen groves, interspersed with lush wildflower meadows and threaded by fern-banked streams, while the high peaks command vast panoramas over mountains, valleys, hills and canyons. Most of them

are accessible by fair to good roads, and in several the lofty summit ridges can be comfortably climbed by car. There are numerous improved campgrounds, miles of hiking and riding trails, fishing, rock climbing, gem collecting, bird watching or just loafing amid grand surroundings. A few rustic lodges are available, and the nearby valley and foothill guest ranches make good headquarters for exploring the high places.

All six ranges are within detached divisions of Coronado National Forest. Descriptive folders, maps and information may be obtained from the Supervisor's Office, Tucson, and details about special areas are furnished by the superintendents of Saguaro National Monument, Tucson, and Chiricahua National Monument, Dos Cabezas.

The best times for a visit, particularly if you camp, are early summer and fall. The latter is particularly fine for brilliant coloring in the aspens, maples and oaks. Although the thundershower season of July and August is perhaps the most enjoyable time of the whole year in southeastern Arizona's highland country, it is apt to be somewhat damp and chilly above 8000 feet.



THE MT. LEMMON HIGHWAY LEADS TO COOL COUNTRY

The most popular and accessible of the sky islands are the Santa Catalina Mountains, which stand like a great wall directly north of Tucson. The scenic, all-paved Mount Lemmon Highway loops up the

—continued on page 21

# What's Behind the Desert Mirage?

By Erwin Kauper

Author of "Wind—the Desert's Worst Weather," in the May '61 Desert Magazine

A TALE, TATTERED by over-use, tells the plight of a desert prospector, his water supply exhausted, staggering across burning sands following the lure of an ever-receding lake of shimmering water—a mirage. While this scene has been performed on paper and film more often than in actuality, it has been experienced enough to give it dramatic overtones so useful to storytellers.

To the modern desert explorer, traveling paved highways, the mirage is common enough, appearing as a sheet of water covering the road ahead near the horizon.

This is just one of the optical rarities best developed under desert conditions—days filled with an abundance of light and heat.

The shimmering ghost of water on the road is called an inferior mirage, since the mirage appears beneath the object actually seen, which in this case is the sky. Its appearance on the road ahead is due to the restlessness of the atmosphere. The mirage is formed, destroyed and reformed in quick succession, so that the sky—the object—appears as a shimmering sheet of water. (See illustration on this page.)

What is it that allows such goings on? Normal atmospheres have a regular decrease of air density with height. Light rays in this case are well behaved and one may be reasonably sure he is seeing what he thinks he is seeing.

In desert country, though, on hot days the ground heated by the sun in turn heats the air at its surface. This causes the surface air to be less dense than that of the air above. Under such conditions are the inferior mirages formed.

To illustrate, say you are looking down the road toward a hill on the horizon. Just below the crest of the hill there is a sheet of mirage-water. As long as your line of sight is above the heated layer of air next to the ground you see objects in their natural place. That is why you can distinguish the hill. Now, as you lower your gaze, the light ray is refracted, or bent, as it enters the hot air layer. You think that you are looking in a straight line, but actually the light ray to your eye has been bent upward to a point where the sky is the real object you are seeing. It is just as though the sky is seen reflected from a mirror located at the ground—the place where the mirage occurs.

The twinkling of stars at night and the shimmering, wavering outlines of far away objects in the daytime are both due to masses of air of different densities drifting across the observer's line of sight.

Light on the desert produces, on one hand, some of the beautiful color effects on mountainside and cloud at sunrise and sunset, and on the other, the ever-present glare that pervades the midday scene, causing discomfort to those whose business carries them out of the cool interiors of desert dwellings. The light ray involved is basically the same at dawn, noon and dusk, but the intense midday light is full strength, reinforced by the scattering of light from microscopic particles suspended in the air. It is white light, made up of all the colors of the visible spectrum—the rainbow colors.

The intensity of glare is increased when light is reflected off a light-colored surface, such as a dry lake bed. A dark basaltic hill, on the

contrary, absorbs much of the incoming light and reflects very little. This fact is well known to photographers who use light meters to produce correctly exposed pictures. They know that a dark background will require a larger lens opening than a light-colored scene.

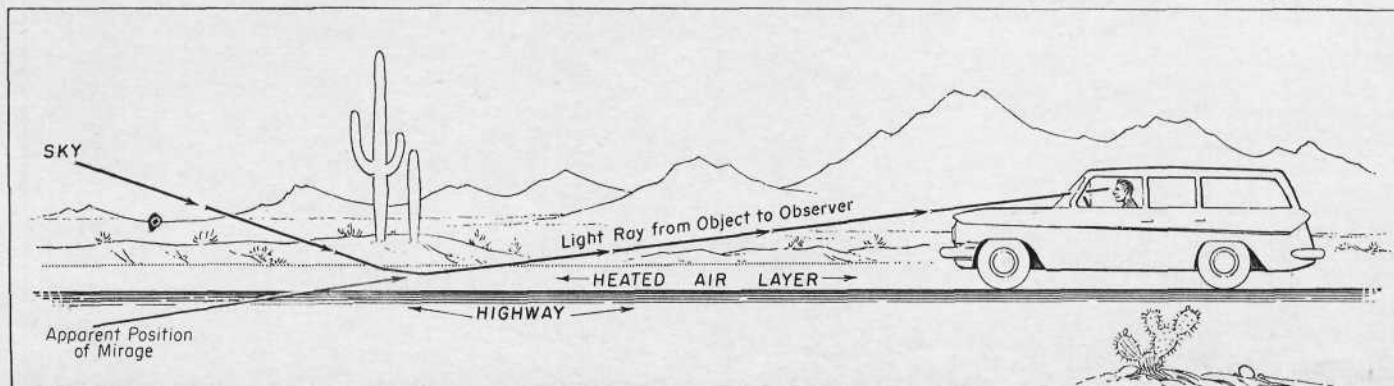
A characteristic of glare due to light scattered by particles is that this scattering is much greater in the direction of the incoming light rays. That is why it is so much harder to see through a dirty windshield when driving toward the sun than away from it.

The blue color of the sky is really another trick of light. Actually, the sky, without an atmosphere or one that was absolutely transparent, would be black. The air of the atmosphere, together with its small particles of impurities, causes the incoming light to be scattered. With very small particles involved in this scattering process, the result is a blue sky. As the particle size increases—as it does during a desert sandstorm—the red-end of the spectrum is selectively scattered so that the sky color ranges toward the brassy yellows, browns and reds.

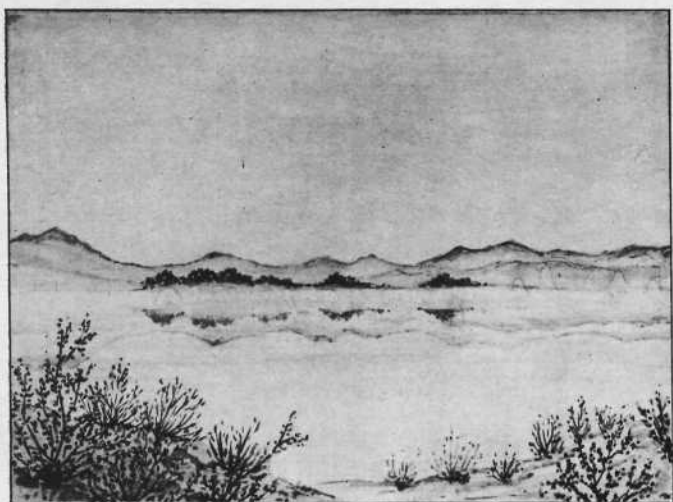
The desert sunrises and sunsets, with their predominant red tints, are due to the blue portion of the sunlight being scattered as it travels over its long path through the atmosphere. The surviving light from the red-end of the spectrum manages to perform the miracle of color by itself, reflecting from the cloud layers into the eyes of the appreciative beholder.

When the desert's mood changes, and the light-giving sun is veiled with clouds, other optical sights may be seen. Ice crystal clouds over the sun

**MOST COMMON OF ALL DESERT MIRAGES IS THE "SHEET OF WATER" THAT APPEARS ON THE HIGHWAY JUST AHEAD OF THE CAR AS IT SPEEDS DOWN THE PAVEMENT. ACTUALLY, WHAT THE DRIVER SEES IS THE SKY REFLECTED OFF THE GROUND LAYER OF HOT AIR.**







**INFERIOR MIRAGE. THE INVERSION LAYER—AIR OF DIFFERENT DENSITY —IS BELOW EYE LEVEL OF OBSERVER. THIS IS MOST COMMON MIRAGE.**



**SUPERIOR MIRAGE IS RARE, OFTEN MISTAKEN FOR STRANGE CLOUD EFFECT. MIRAGE OCCURS WHEN INVERSION LEVEL IS ABOVE EYE LEVEL.**

may result in halos — usually in a circle of  $22^\circ$  radius around the sun. These objects are usually white, but colored at times, with the red tint on the inside—the result of light refraction. Coronas are more common and are due to the light being diffracted by a cloud of water droplets. In this case the circle of light is nearer the sun, closer than the  $22^\circ$  halo position. The corona always has the red color on the outside of the arc.

When the desert clouds become boisterous, rain may come to the thirsty land. With proper stage setting, rainbows may make their spectacular appearance. Required, however, is a shower occurring in the sky-scape opposite from the sun. The sun, of course, must be shining relatively freely. And finally, this must take place only when the sun is less than  $42^\circ$  above the horizon, making the rainbow a creature of the early morning or late afternoon. With these conditions set up, raindrops are able to act as innumerable little

prisms, breaking up the sunlight into the rainbow spectrum.

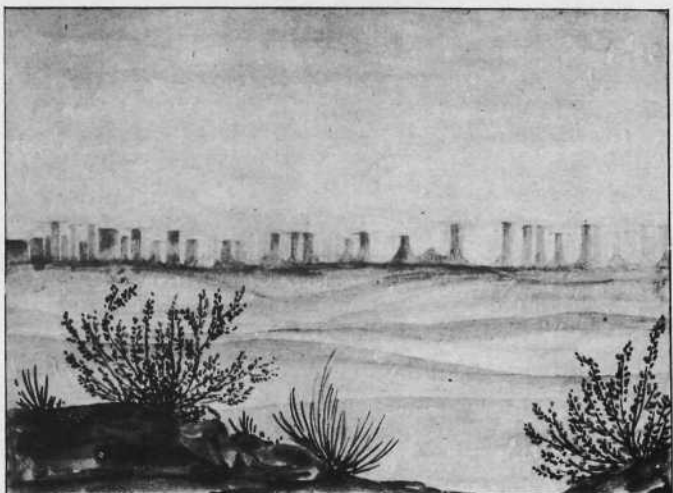
Man, never content, has always gone from observing and marveling at the beauties of nature to studying their causes, and finally to utilizing them for his ends—good or bad.

Light was one facet of his environment that man early learned to use. The magnifying glass, to produce fire, the mirror with which to flash signals, both made use of light. The American desert was the scene of an Army signaling system that depended on the ever-present sunlight. This was the heliograph, by which messages in code were flashed from hilltop to hilltop in the days when the cavalry was "taming the West." A modern day variation of this communication system has recently been tested near Edwards Air Force Base on the Mojave Desert. A Southern California organization, under contract with the Air Force, is working on a sophisticated heliograph system for use in outer space communications. Thus the desert is serving as a testing

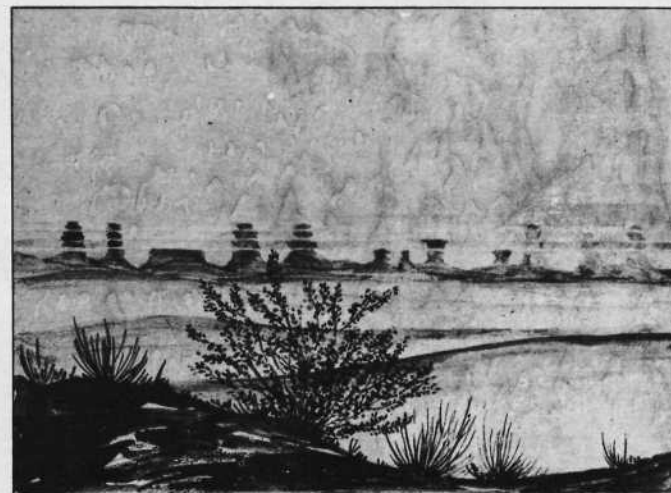
ground for man's future explorations, possibly to deserts of other worlds.

But for men who intend to habituate this world's deserts, light will continue to be a source of beauty or of annoyance, depending on the degree of intensity. The beauty needs no special adaptations for enjoyment. The annoyance of too much light is overcome by proper equipment. This may be as simple as a good pair of dark glasses for outdoor use, or as complicated as a fully air-conditioned home, with wide overhangs and other sun screens to cut out the direct rays of light.

Of course, the desert prospector, that illusory victim of the mirage, is never seen with anything but a broad-brimmed hat to ward off the desert sun. Should he lose that, though, he is in fair way to being a casualty of the desert—due to sunstroke, rather than the mirage, for sunstroke, after all, is a real problem in the summertime desert, while the mirage is simply—a mirage. ///



**LATERAL MIRAGE OCCURS AS VERTICAL SHEETS OF AIR OF DIFFERENT DENSITY DISTORT DISTANT MOUNTAINS. SHAPES WAVER AND FADE.**



**MULTIPLE-SUPERIOR MIRAGE. SEVERAL INVERSION LAYERS ABOVE EYE LEVEL MAY CHANGE DISTANT OBJECTS INTO FANTASTIC SHAPES.**

# BETTINA STEINKE

## Taos Artist

By W. THETFORD LeVINNESS



TAOS, NEW MEXICO, has been renowned as an art center for many years. Practically every school of painting is represented here—from the arch-conservative to the transcendental and abstract. A few Taos painters specialize, and, of those who do, one is a nationally acclaimed portraitist.

She is Bettina Steinke, a native of Biddeford, Maine. She does some figure painting besides. Portraits of American Indians are her "specialty within a specialty," and the nearby pueblo is a convenient source of material. In fact, this ancient "apartment house," which has stood in the mountains of northern New Mexico a thousand years, is one of the main reasons why Bettina lives in Taos.

"It's a place of fulfillment as well as enchantment," she explains. "I've always loved portraying the people of the land, and Taos has been for centuries the home of my favorite people, the Indian."

Bettina does portraits of Utes and Navajos, too. "On canvas, each must be individualized," she says. "Not one of them, of any tribe, is 'just another Indian.'" Taken as a whole, however, she finds them "a very beautiful people, with humor, kindness, and peace in their faces."

In private life, Bettina is Mrs. Don Blair. Her husband, a photo-journalist, operates a Taos camera shop and does assignment work for magazines and newspapers. Their home, on a height overlooking the famous Franciscan mission at Ranchos de

Taos, is in classic adobe. One portion, about 150 years old, has mud floors and a ceiling of cedar *latillas*. The Blairs take good care of this rambling homestead, and each year the interior is redone—traditionally, in *tierra blanca* and *tierra prieta* from the distant foothills of Llano Quemado. Bettina and Don like to entertain, and having a large, attractive home where their friends may come and go as they please is part of the joy they derive from living in Taos.

Bettina's portraits are almost exclusively in oil and pastel, though much of her early work was in charcoal. Over the years she has portrayed dozens of famous personalities, and she receives commissions to do likenesses in many parts of the country. Her clients seldom visit Taos for sittings. Instead, she and Don load up their station-wagon and drive hundreds of miles to a client's home.

"This way the subject is in familiar surroundings and relaxed," she says. "It's important to the portrait. Sitting for hours in an artist's studio creates boredom and impatience in the sitter, and this often shows up on the canvas."

Bettina and Don work together as a team — with professional skill. Bettina makes preparatory sketches from life in only one or two sittings, then does the job of finishing the portrait when they return home. She works from photographs which Don takes of the subject "on location."

Bettina worked in this manner long

before she met Don. She made connections with several magazines and business firms early in her career, and was assigned portraits of famous, busy people. "Often they would give me only from half an hour to an hour of their time—sometimes not even that," she says. "The 'candid camera' idea struck me, and after that I'd begin a portrait by hiring a photographer. It was a happy solution. The sitter didn't ever have to sit very long, and as a result I received far more commissions for portraits."

Today, in her Indian work as well as the other, Don does her photography for her. "He has the uncanny knack of knowing just when to click the shutter at the peak of an expression," she declares. "With him I have been able to bring to refinement what is, after all, an unusual method of portraiture."

"Refinement" is a good word. Whether she is doing Taos or Ute, Navajo or the proverbial paleface, Bettina Steinke's completed product is a creative, imaginative painting. She isn't satisfied with a mere portrait; the work is essentially a character study. She brings the subject to life in her mind so thoroughly that she even holds conversation aloud with the unfinished likeness. "We hear jokes all the time about 'crackpot artists,'" she laughs, "but anyone listening at the door of my studio would think artists odd indeed!"

When the United States entered



World War II, Bettina was a member of the Society of Illustrators. She soon joined its program of visiting sick and wounded soldiers and doing their portraits. The Army set aside a plane and crew for a group of 20 artists, and every two weeks, on weekends, they'd fly to a military hospital somewhere in the country and go to work. Bettina's portraits on this project were entirely in charcoal, and done very fast. Often she'd draw a likeness in an hour. It was great for the soldier's morale—and great training for the artist.

"I'll always value the opportunity these quick portraits gave me to make split-second decisions on what is important in a face and what is not," she says.

During this time the War Department asked her to do portraits of several top-ranking military and naval officers. Because these men were scattered in various theatres of operation over the globe, Bettina resorted to her familiar technique—she used photographs.

Bettina married Don on Aruba, an island in the Netherlands Antilles, in 1946. Don was there as public relations expert with Standard Oil Company of New Jersey, and was doing free-lance photography as a hobby. They began at once to work as a team.

Don was assigned by United Fruit Company to photograph its holdings in South and Central America and the West Indies. Bettina traveled with him. She painted what she liked, both from Don's pictures and

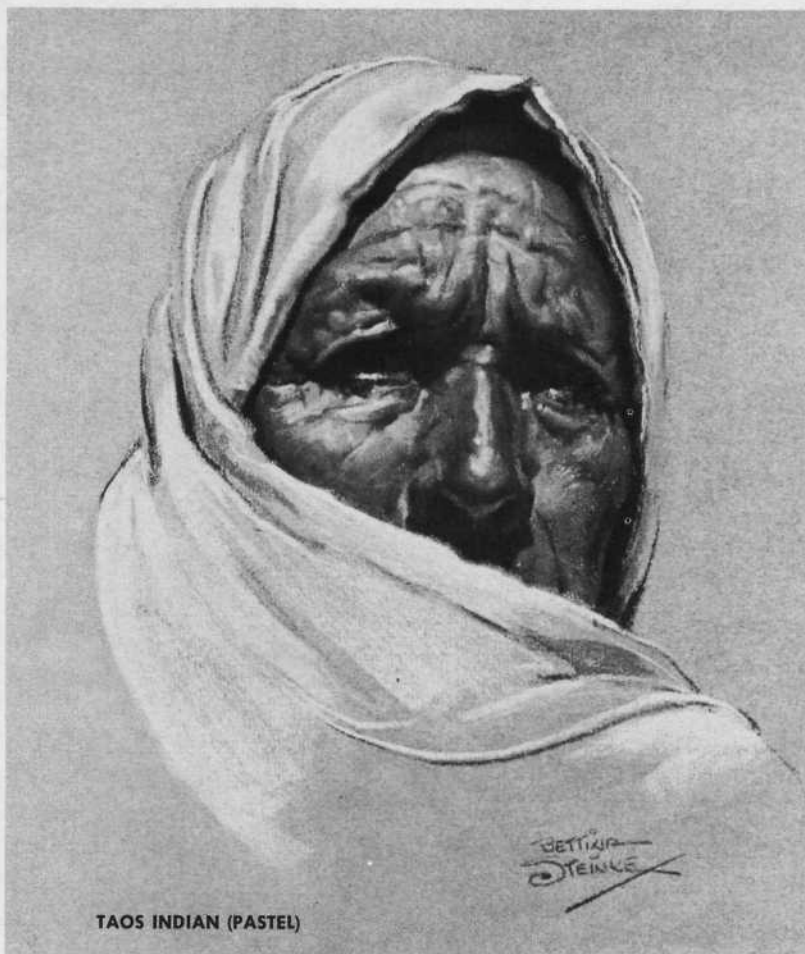
from life, and the company bought much of her work when the trip ended. The two of them went other places under similar arrangements, for Cities Service and the Hudson's Bay Company. For several years they covered operations of big industries from south of the equator to the

Arctic Circle—he as photo-journalist and she as artist-illustrator.

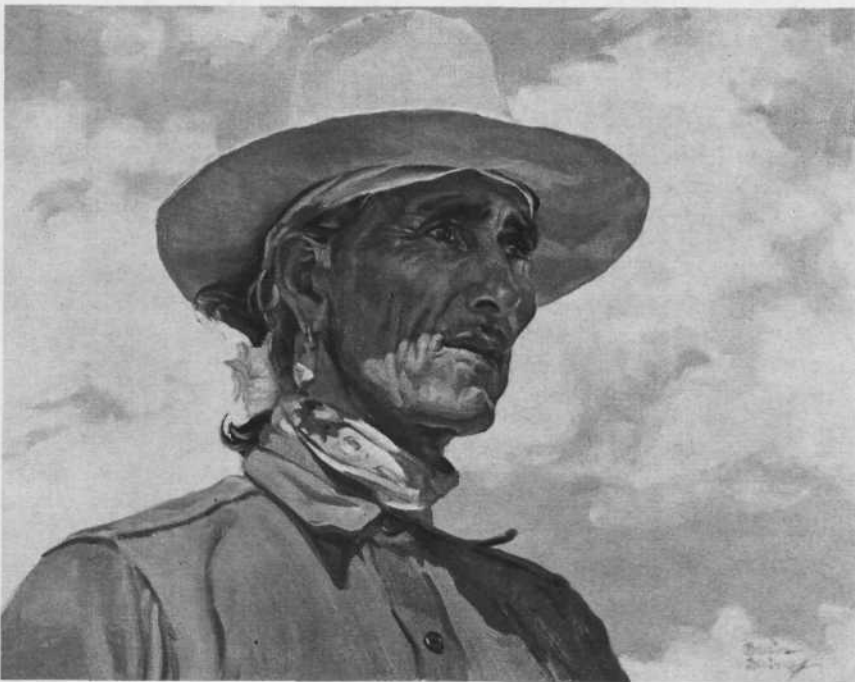
Bettina enjoys most her work among native peoples—Eskimos, Central American Indians, Taosenos. But her list of distinguished subjects among non-Indians reads like random selections from the pages of *Who's Who*.

"But I'd be quite satisfied to paint nothing but American Indians the rest of my life," she says. "I wish to do portraits among all the tribes. I realize that this would take several lifetimes, but I want to do what I can in one. If I could only tear myself away from the Taos area for a while . . ."

This last might be a problem. Bettina and Don are an integral part of the Taos community—one of Indians, Spanish-speaking people, artists, and writers. They attend openings of art shows and participate in much of the social life of the city. At home, their specialty is barbecued *cabrito*—young goat. When the weather is good, the roasting is done outdoors on the bank of a near-by rivulet. People from miles around have enjoyed the Blairs' hospitality at these distinctive *fiestas*, where there is always charm, good conversation, and plenty to eat. ///



TAOS INDIAN (PASTEL)



A STEINKE OIL PORTRAIT OF A NAVAJO

# BRAWNY MEN AND TRUE STEEL

## The Story of Hard-Rock Drilling: the Desertland's Forgotten Sport

By LILLIAN NINNIS

**T**HE DESERT Southwest's turn-of-the-century years are remembered as the era of the mining booms. The population was young and transient. The get-rich-quick virus was in every blood stream. It was the action age; every hill concealed a potential bonanza; every new strike rocked the desert country with excitement. Most of the men who rushed hither and yon in the Great Basin were met at each new camp not by easy riches, but by hard work. Usually, this toil was directly related to the somewhat specialized activity of mining ore in someone else's mine.

This was before steel and gasoline horsepower replaced human musclepower. To be sure, there was dynamite to shatter the solid rock, but before the fuse could be lighted, there was need for a man with hammer and drill to sink a strategically-placed hole in the hard granite for the dynamite.

There was quite a trick to drilling these holes. Some men became quite expert at it, and with proficiency came pride.

Who knows where or when this business of hard-rock drilling contests started? It is easy to surmise how it all came about. As one driller's reputation spread over the dry countryside, it was sure to rub-up against the reputation of another. Some "my boy is better" talk was sure to follow; a bet or two was made; and then the two local heroes met.

"Murder that drill, man, we won't take less!" soon became a familiar cry wherever men toiled to extract minerals from the ground, and whenever they had a special occasion to celebrate such as Fourth of July or Labor Day or Statehood Day or just plain Sunday.

The contests became standardized. Everyone had been to all the Western camps; they all knew the rules.

For a time there was a lively debate as to the difference in hardness be-

tween one local granite and another. As a result, Gunnison granite — declared the most uniform in consistency by some now forgotten authority — became established as the official contest granite. Blocks of this material were quarried in Gunnison, Colorado, and shipped to the far corners of the mining country.

Before the contest, a grill pattern was marked-off atop the granite

block, and each of the squares thus created was numbered. The contestants then drew corresponding numbers out of a hat. By means of this impartial ritual, each contestant was assigned the particular spot on the rock where he would sacrifice every ounce of life-energy in an all-out effort to pound his steel drill deeper into the granite than any of his opponents would be able to do.

There were two kinds of matches — single-hand and double-hand. In single-hand, one man worked alone, swinging his four-pound hammer with one hand, turning and changing his drills with the other. Each contestant was allowed to pound away for 15 minutes.

This time limit also was used in double-hand competition, in which one man of the team would hold and change the drills while his partner smacked them with an eight-pound hammer. It took iron muscle to pound 85 to 90 blows a minute on the drill head's tiny circle. And it took iron nerve to hold the drill—lifting and turning it after each blow, and then, when the bit was dull, yanking it from the hole and slapping a fresh steel in place with such speed and skill that the hammer-man did not lose a stroke or break the rhythm of his powerful blows.

The art of changing positions in double-hand drilling became a ballet. The teammates alternated jobs every minute or less. For a moment both men would be standing, hammer in hand, each striking two blows with none touching the drill (this was called "fostering," and the rules allowed only two blows). In the next split second, the change would be complete — the former hammer-man would be on one knee, turning the steel; his partner would be swinging the eight-pound hammer for all his worth.

The best of these drillers were true and conscientious athletes, training hard for each match and keeping fit



DOUBLE-HAND CONTEST AT TONOPAH, JULY 4, 1901. WHEN THE CAMP HIT ITS STRIDE A FEW YEARS LATER, FLAGS AND BUNTING ADDED COLOR TO THE EVENT (SEE PHOTO OPPOSITE).



between contests. The performances they gave were poetry in brawn, endurance and skill.

Each one-man and two-man team had a swamper—a sort of coach who kept his eye on the deepening hole and played water into it to wash out the rock cuttings—all the while exuberantly giving his advice and encouragement to his man or men. Woe to the swamper who allowed the stone cuttings to cause the drill to become fitchered in the hole.

The swampers added much color to the game. The old Swede who was swamper for Ed Chamberlain and Carl Make (two of the all-time greats) made quite a reputation for himself by using a mixture of beer and water to keep the drilling hole clean. He contended that the foaming beer floated out the cuttings.

A blacksmith prepared the drills, and his was the disgrace if a steel broke under a hammer-blow. There were 15 octagonally-shaped drills in each set; they graduated in length

in three-inch steps. Three-quarter-inch steel was used for single-hand drilling; seven-eighths-inch for double-hand. The beautifully gauged bits were carefully calipered so that each steel would slip with the utmost precision into the hole.

The greatest insult to a blacksmith would be to suggest that his steel hadn't been prepared properly. Such a charge led to serious doings in Tonopah following the July 4th, 1903, drilling contest.

While Hansen and Benane were drilling, a drill broke, disqualifying the team. Later, when a crowd was gathered at the granite block to inspect the broken drill, a young man named Walter Dunne was heard to remark: "I'm no blacksmith, but I bet I could do a better job than that myself."

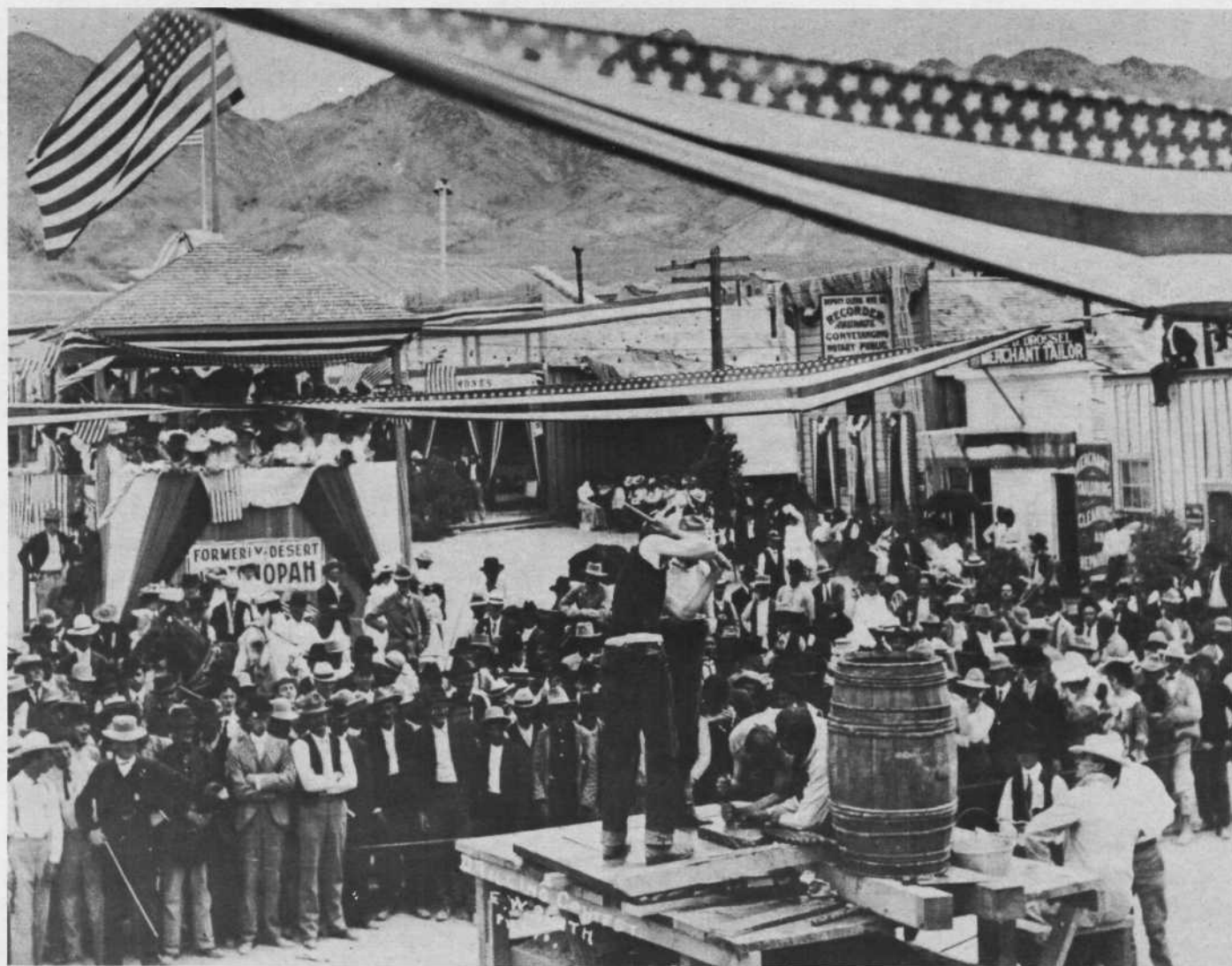
Unfortunately for Dunne, Frank Smith, the blacksmith who had made the steels, was standing nearby. Smith called Dunne a vile name, and the two men fought briefly until sepa-

rated by the police. Next day, Smith got his revenge. Standing at the Tonopah Club bar, he spied Dunne. In an instant he was at the younger man, knife in hand. Dunne died the following morning of multiple stab wounds, and Smith was hustled off to Belmont to avoid a Tonopah lynching.

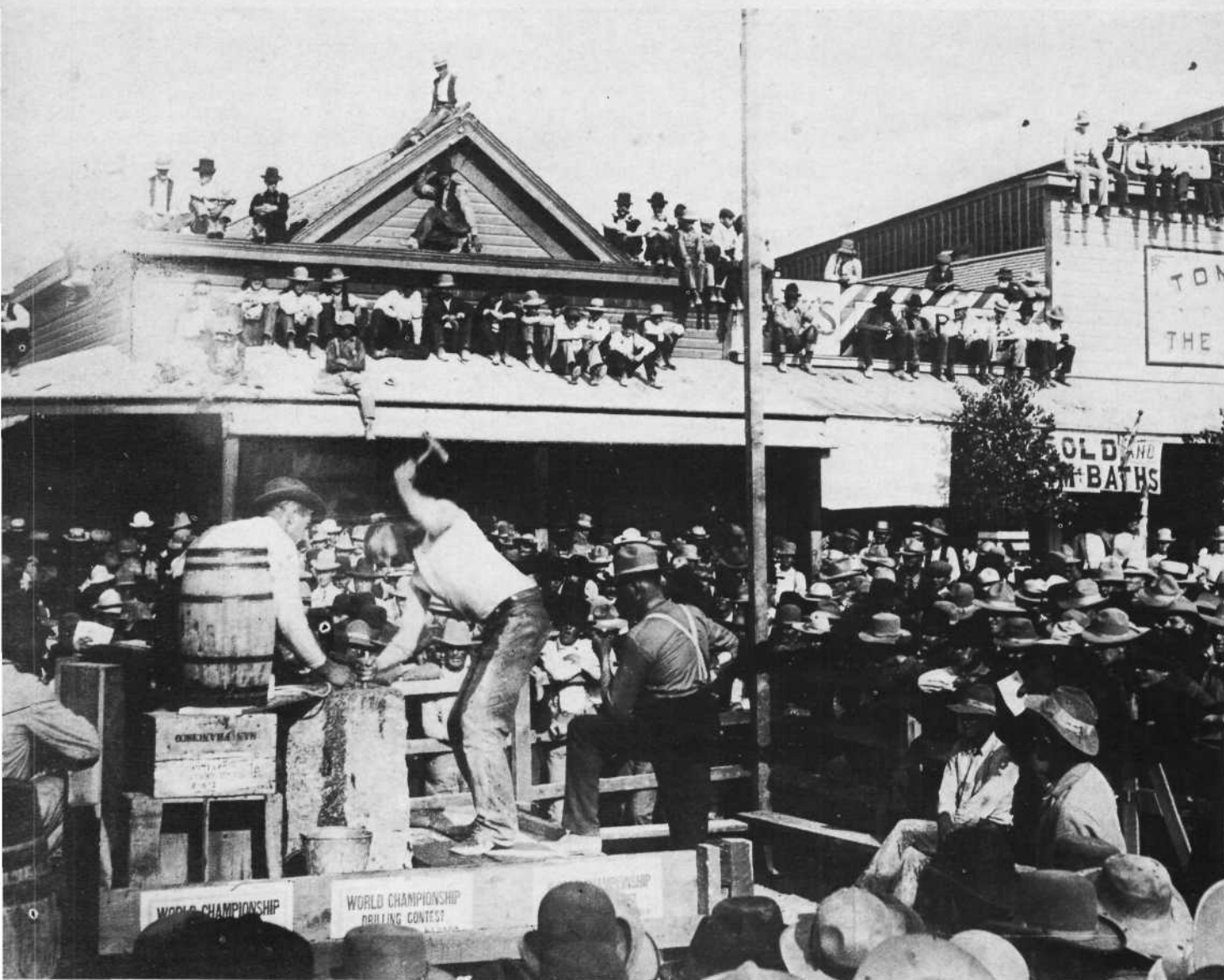
Every mining camp glorified its best drillers and backed them with hard cash at the contests. Many of these "stars" were big men physically. Make, Chamberlain, Jim Pickens, Mike Kinsella, Mike McNichols, Walter Bradshaw and Bill Ross each tipped the scales at 225 pounds or more. Ed Malley, McIver, McLean, Richie and Fred Yockey were lighter.

In a 1903 Bisbee, Arizona, match, Chamberlain and Make drilled perhaps the deepest contest hole ever sunk in Gunnison granite: 46½ inches.

Single-hand drilling required as much skill and strength as double-hand. Fred Dopp of Johnston, Colo-



"A GOOD START MEANS A GOOD FINISH." THE HOLDER STEADIES THE STEEL; THE SWAMPER IS IN POSITION NEAR THE WATER BARREL; THE HAMMER-MAN AWAITS THE TIMEKEEPER'S SIGNAL.



A SINGLE-HAND DRILLER POUNDS AWAY WITH A FOUR-POUND HAMMER WHILE SWAMPER WASHES AWAY CUTTINGS. TONOPAH, JULY 4, 1902.

rado, a single-hand champion, started drilling in 1904 when he was 20 years old. His remarkable record shows that by 1938 he had won first money 20 times in 23 double-hand contests (using 14 different partners), and in single-hand competition had won 19 out of 20 matches.

Another single-hand great was Fred Yockey. At his professional drilling debut, he was so young and unpretentious, the spectators could hardly believe their eyes.

Only a handful of intimates knew that Yockey could average 144 blows a minute for 15 minutes with the four-pound hammer. They made the rounds of all the bars, betting all they had on their friend.

When Yockey "went to the rock" there were some cat-calls from the crowd.

"He ain't even dry behind the ears," cried one man.

Yockey took hold of his hammer, and another voice raised itself above the noisy crowd: "That's a pretty big hammer for a greenhorn. Are you sure you can swing it?"

The young unknown quietly arranged his steel, and when the signal to start was given, he whipped his hammer through the air with such speed, someone in the perch-top gallery yelled: "Take it easy, kid, or that arm of yours will peter out."

Needless to say, there were a great many surprised drilling fans after that contest. It was a great day—and night—for Yockey and his pals.

Yockey's Labor Day, 1905, performance at Tonopah, Nevada, was a never-to-be-forgotten experience. For a dozen minutes of furious drilling, Yockey's pace did not slacken, and then, knowing his steel was already sunk deep enough to win, he decided to give the good-natured crowd some real entertainment.

He began burlesquing the errors of his competitors.

A Goldfield driller had lost his hammer several times in his excitement, and so Yockey let his hammer slip, chased after it, and then began working furiously, as if his winning—and very life—depended on it.

Another driller—this one from Bodie—changed steel so often his drills had stood far out of the hole. Someone had brought down the house by shouting: "Stay with 'em, man. You'll soon be pounding 'em up to your eyebrows." Yockey hammered away at a drill that was "up to his eyebrows."

Walter Bradshaw and William Ross of Tonopah faced Carl Make and Jack McIver, the Bisbee team, for the "Double-Hand Drilling Championship of the World" on that long-ago holiday. Make's reputation reached to the farthest American mining camp, and it is said he won



more money in drilling competition than the next 10 men combined.

McIver held while Make struck the first blow.

"Steady Carl!" shouted their swamper. "Make it round. You gotta minute to start that hole. A good start means a good finish. Find the center, man. That's the way. Now, drive 'er home!"

This frenzied patter continued for the full fifteen minutes of the contest. (Coaching on the sidelines in almost any other sport is tame business compared to what went on between swamper and participant in a good drilling contest.)

The Bisbee boys worked like perfectly geared machines.

"Pray a little, boy; pray a little, but watch that drill head," cried the swamper.

"Come on, big man! There's a thousand dollars in that blow of yours."

The men switched positions with perfect coordination and timing. A murmur of approval swept through the crowd.

"Go after it!" shouted the swamper. "Down with it! That's the Bisbee strike! Home, home, home—a blow for the money!"

They changed once more. Make began swinging at the steel for all he was worth. Moments later, a gasp of dismay came from the audience. Great Carl's hammer had missed the drill head and thudded heavily upon the rock!

"Bad mining!" cried the swamper. "Hammer for your life from now on. You can smoke a four-bit cigar tonight if you do!"

One after another the dulled needles of steel were yanked from the hole and replaced with fresh ones. The discarded drills landed with a silvery ring on the rock, or with a dull clump amid the dodging crowd.

"Fifteen minutes!" barked the timekeeper, and his hand fell with a sharp slap on the hammer-man's shoulder. The Bisbee champions had given their all. While officials and contestants crowded in close to inspect the hole as it was pumped out and the measuring rod sunk to bottom, Make said: "That was the fiercest piece of granite I ever drilled."

The judge silenced the crowd. "Forty three and one-quarter inches," he announced, and the assembled replied with a roar.

"I had hoped for 45 inches," com-

mented Make, "but 43 and a quarter will take some good drilling to beat."

Now it was up to Ross and Bradshaw. Tonopah cheered the local champions to the blue Nevada skies.

Bradshaw carefully delivered the first blow to give Ross a chance to start a good hole. The next second their full-powered rush was on. Each steel thrown out during a change was anxiously grabbed and spanned by the other drillers. This was their way of keeping running score. The drills they measured told them the contest would be close: 6½ minutes — 18 inches; 7½ minutes — 20 inches; 8½ minutes—23 inches; 10 minutes — 28 inches; 11½ minutes — 33 inches.

When the last blow was delivered and the hole pumped out, the verdict was in and the crowd learned just

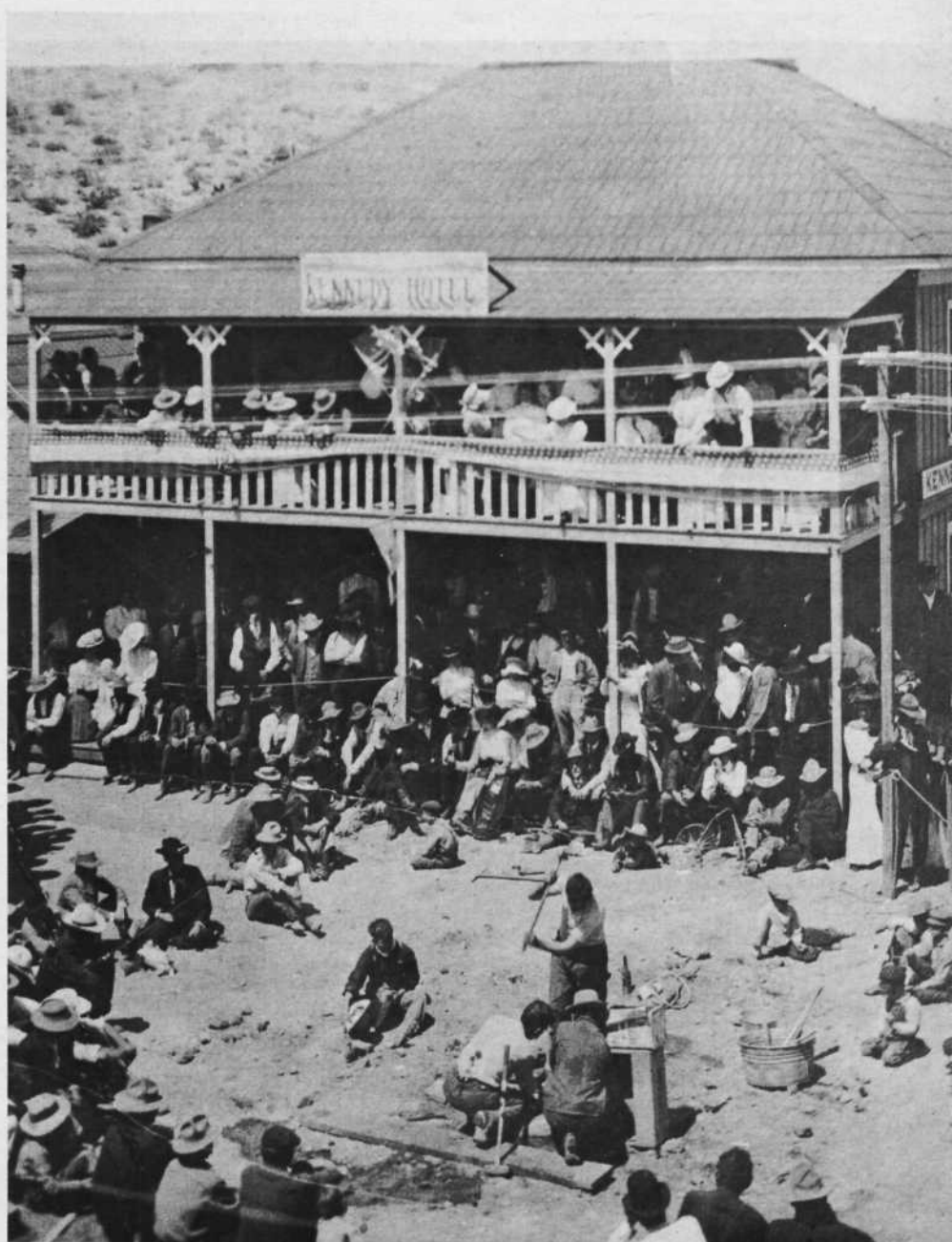
how close this battle had been.

"Forty three and seven-sixteenths inches!" shouted the judge, and the Tonopahans went wild. Champions by a 3/16-inch margin! The home team had won.

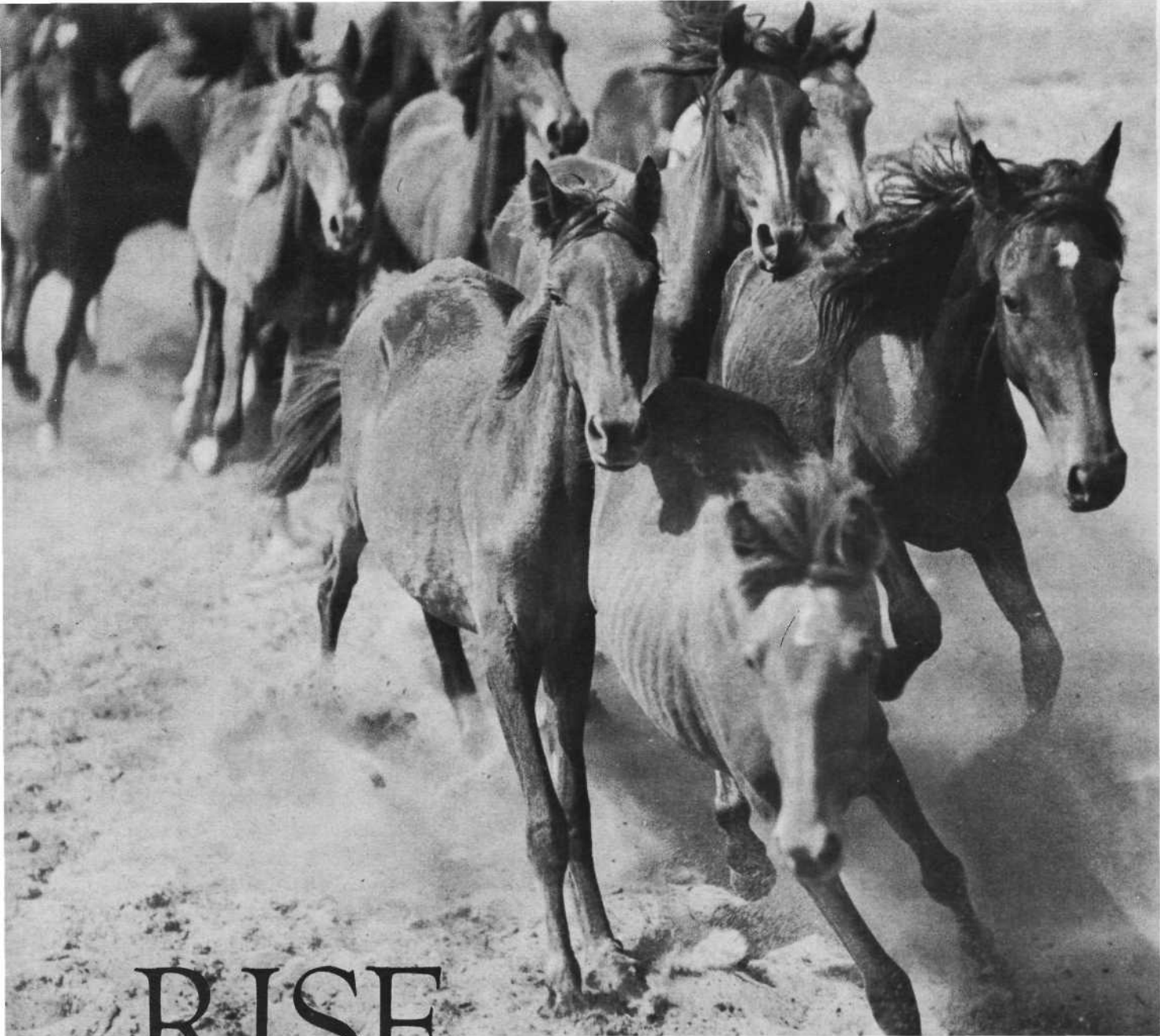
Time and machines have all but erased the mining country's most indigenous sport. In some abandoned camps you can still find a block or two of granite pocked with drill holes; a few even have broken-off steel embedded in them.

From time to time we hear that some camp is having a drilling contest as part of a town-wide celebration, but these are rare.

These things—and a few long, long memories—are all that remain of the drilling game. ///



DOUBLE-HAND ACTION ON THE MAIN STREET OF SEARCHLIGHT, NEVADA, CIRCA 1910



# RISE and FALL

## --of the Gila River Mustang

By LYNN COOL

as told to Cloyd Sorensen, Jr.

**A**RIZONA'S GILA RIVER mustangs had their start far across the desert in the Tehachapi Mountains of California. In 1880, George Cameron sold his Tehachapi Ranch to the railroad and drove two fine studs and 60 trotting mares to his new spread at Agua Caliente, a few miles due west of Gila Bend.

There was only one incident on the long drive east worth mentioning. While crossing the Colorado River near Yuma, the Indians jumped Cameron and demanded half of his horses and 130 head of beef. Luckily, the rancher had a resourceful wife. She pock-marked her face with charcoal and told the Indians she had small pox. The red men vamoosed like the devil himself was after them.

George Cameron lost no time digging in, and when his son was old enough to run the ranch, the old man established a wagon yard and horse stable in Phoenix where he was successful in marketing his horses to the local ranchers and the U. S. Cavalry. In those days the



Army would pay \$125 for a sound horse that stood 14 hands high and weighed over a thousand pounds.

Many of the horses were purchased for the famous Rough Riders. Buck O'Neil is reported to have said that some of the Riders' fastest horses came from the Gila River country.

By the turn of the century the Cameron stock had become so plentiful that it ranged from Wellton to Arlington — over 80 miles — and was mixing with the Papago Indian stock.

After several generations of mixing and in-breeding in this big range, many of the animals were just plain wild. These unbranded horses developed into a breed known as the mustang—small, wiry, and mean—but with almost unbelievable stamina, endurance, and great speed.

In 1918 the Camerons, finding it harder to meet the tougher specifications of the cavalry, sold their last horse to the Army. By this time it was estimated that there were a thousand mustangs along the Gila River and another 500 watering on the Gillespie Canal system. It was getting so a cow was hard-put to make a living on the bare range thanks to the increasing competition from the mustangs.

During the '20s, only the Indians—who liked to keep about six head of horses apiece—went after the mustangs. They had an ingenious method of capturing these wild horses. The mustangs were permitted to fill-up on water after a hard chase, then the Indians would resume the chase. After about three-quarters of a mile, the water-logged wild horses would develop severe belly-aches that caused them to fall over and kick helplessly.

By 1930 the mustang situation was serious and people in these parts were quickly losing any romantic Wild West notions they might have had about the wild horses. They began referring to the mustangs as broom-tails, broomies, fantails, hammerheads, knotheds, scourge of the range and some unprintable epithets.

Nine out of ten fantails were mavericks, and something had to be done; a cow critter didn't have a chance against the broomtails. The horses were so thick that they themselves were in poor condition.

Ike Hocker, constable and Sheriff of Gila Bend, had done a little mustanging, and said he could catch these range ruiners. Plans were drawn up.

I went to work for Hocker and Don Boyer in 1930 for room and board and my pick of two wild horses—if and when we captured them.

My job was to ride fence in the daytime and trap mustangs at night. In my spare time I was to furnish fresh meat for the horse wranglers.

Our masterplan was simple. First, a waterhole was made south of the canal and west of Gila Bend. Then a one-strand barbed-wire was run from the Ajo railroad track to the S.P. fence at Theba.

There was a post every 50 feet with two or three white rags tied between. This may seem like a flimsy barricade, but it sure could turn a spooked wild bronc.

We made our camp near the waterhole in a mesquite thicket and slept in the trees to get away from the all-too-plentiful ants and rattlers. We built a stout corral around the waterhole, and a small holding corral with a loading chute and crowding pen. We tied 150 feet of smooth wire to the swinging gate, and waited.

About dark the horses began to arrive. Business was

slow until a small jack burro trotted into the corral for a drink. Two herds followed him in and we slammed shut the gate. The horses were allowed to drink, and then run into the holding corral, after which the main gate was reopened for more horses.

Again business was slow despite the fact that plenty of broncs were stomping around in the darkness. These herds usually consisted of a stallion and from three to nine mares and colts, which the stallion guarded at all times from all takers.

After an hour without catching another horse, we turned the burro loose. We watched his actions as he circled around the wild bunches. He had quite a way with the mares while the stallions were off chasing or fighting one another.

Romeo (the name we gave the jack) returned to the corral, as we had hoped, with three bunches of broncs trailing behind.

About daylight seven stallions came up to the corral. They had been whipped-out of the herds by bigger and tougher studs. Romeo went out and nipped one of them and they chased him back to the waterhole. Once past the gate the trap was sprung.

The captured animals were turned out in the main corral and a count was made. We had 83 head of browns, blacks, bays, sorrels, pintos and roans, two mules and Romeo.

The pair of wild mules looked the situation over, made two circles around the big corral, stuck their noses in a hole in the barricade and worked themselves free. Then they sold-out for the Black Mountains. We plugged the hole with bales of hay.

By this time the small family groups were pretty well mixed up and the stallions were going crazy trying to keep things in order. Then the fights began. At one time we had five battles going.

Sheriff Hocker said the jack burro we called Romeo was his, as he was branded with a VZ iron, and that his real name was Alexander.

Alexander was as tough as rawhide, and we changed his name to Rawhide for a while. This mountain canary got into some pretty good fights. He used bulldog tactics—grabbing hold and hanging on, all the while working his powerful jaws like a chain saw. Rawhide weighed about 350 pounds and could whip a stud twice his weight. After a few fights the stallions left him alone, and Rawhide became known to us as the King of the Broncs.

Very few of the mustangs were branded. The Indians took a couple that belonged to them and Hocker bought a few for two dollars a head. The rest—unfit for domestication—were trucked off to Los Angeles.

While loading the broncs, Don Boyer decided to show the horse wranglers how to prod the animals into the chute. He got too close to a tough mare and she kicked him in the stomach. The whole herd spooked and ran over him. We pulled him out and poured two buckets of muddy canal water over him. When he came to we asked him how he felt. "Just like a herd of wild horses had run over me," Boyer answered.

We were only catching between 10 and 20 horses every night until it got real hot and dry in July. All the waterholes in the desert and mountains dried up and horses by the score were forced to come in to our trap.

At one point, the trucks could not keep up with the

trappers and we had 200 head in the main corral. This was too many broncs to feed, and it was decided to drive them to the Stout Ranch about two miles away where a section of good feed was fenced in.

Hocker put out the word, and all the cowboys, dudes, horse wranglers and Indians for 50 miles around showed up for the big drive.

A circle about two acres across was made by the riders in front of the catch corral. I had the honor of opening the swing gate. Without prodding, the corral was emptied in less than a minute.

The wild broncs milled around for another minute inside the circle of riders and then broke through the human corral and scattered to the four winds. During this time all that I could see was a swirling mass of horses, dust and an occasional rider.

Of the original 200 wild broncs, only a horse that was lame from a snake bite, and two colts were put to pasture that day. After that we caught only enough each trapping to fill the trucks.

Returning to camp one evening after riding fence, I found everything ruined. Romeo had returned for a

social call and kicked over the beans and a 24-pound sack of flour; what he didn't eat he stomped on. We found him asleep under a mesquite tree with an innocent look on his face. We then added a few more unprintable aliases to his name. About two years later, old Romeo came to an untimely end when he butted heads with an S.P. engine at the Theba crossing.

After 90 days of trapping at the corral, the wild horses were getting pretty scarce. We built more corrals and fence near Gillespie Dam. Two wild mules were kept to help with the fence. In the morning we would get the wagon headed in the direction we wanted to extend the fencing, blindfold the mules and get them harnessed. I would get a small club, pull the blind on one mule, wave the club in his face while I pulled the other blind and then catch the tail-gate of the wagon as it zoomed by. After a half-mile of stampeding, the mules would settle down for a day's work. This happened every morning.

Sheriff Hocker was the most popular man in town because he gave a horse to every boy and girl who wanted one. In the next election he scored an overwhelming victory over eight other candidates.

About the time we finished the fence and corrals at Gillespie Dam, the Indians made a big howl about us catching all their horses, claiming we were taking away their only means of transportation. The Bureau of Indian Affairs dug deep into their files and came up with a court decision stating it was illegal to fence public domain. In those days you could ride a hundred miles and never see a fence. Papers were served on the sheriff and mustang trapping was temporarily suspended.

At the hearing it was proved that the fence was on private property. Bernard Gillespie owned a strip a mile wide from the Theba Farms to Gillespie Dam, and our trapping fence was entirely on this property. Then John Cameron testified that all of the wild horses had started from his father's herd that was brought from California in 1880. This evidence stopped the courts cold, and trapping was resumed.

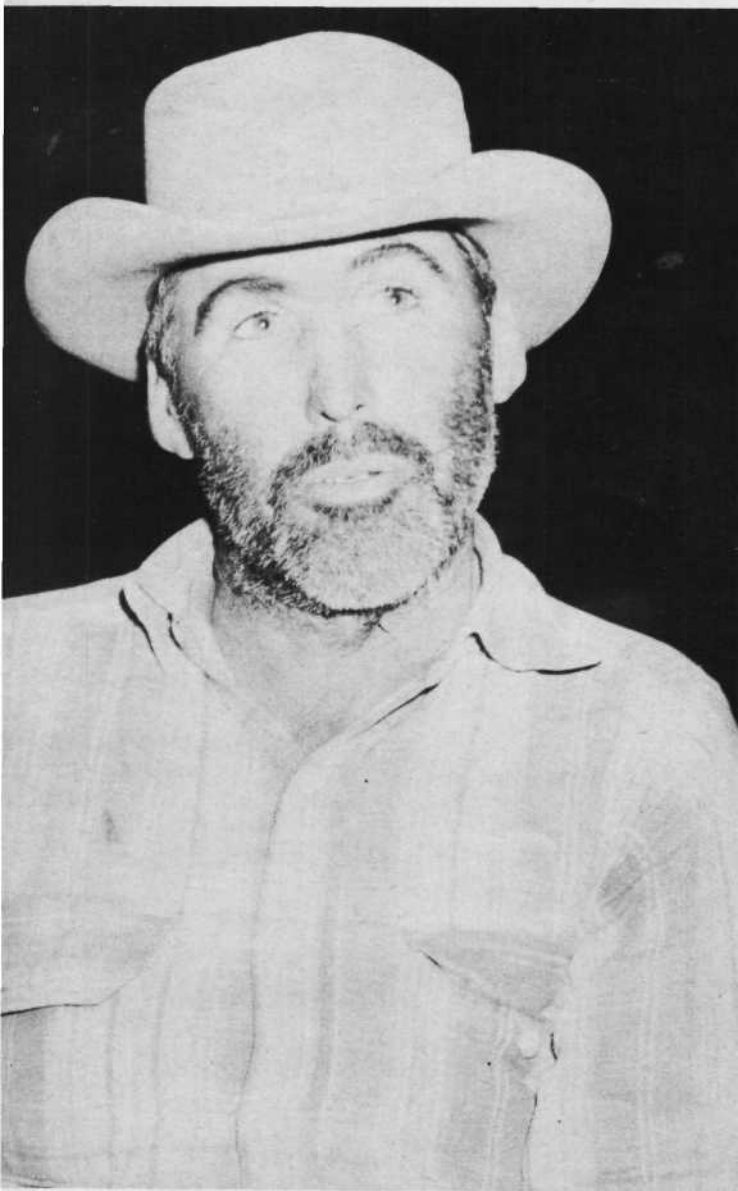
Several hundred horses were caught along the Gillespie Canal, and all that remained in this area were a few head of wild mules that refused to come in for water. Plans were then made to move the trapping operations to the Gila River.

A 10-mile fence was built along the river and a corral constructed in its center, but very few horses were captured on the river because the mustangs had an easy time getting to water up and down the river.

More fence was added with the same frustrating result. When it was obvious that the mustangs could not be trapped, the cowboys were given carbines and ammunition with instructions to shoot the broomtails. It was an unfortunate solution, but the cattlemen were desperate. After being hunted and chased, the remaining mustangs became wild as deer and many moved back up on the Gillespie Canal. Trapping was resumed there and at one point seven carloads (about 40 horses each) were shipped to Arkansas and Tennessee where the horses were sold for farm work. They brought from \$10 to \$50 a head.

Three years ago it was estimated that there were only 30 head of mustang left on the Gila River near the Painted Rock Dam. Now when it rains on the desert and the feed is good, you will see large herds of Brahmas and white-face Herefords grazing where the broomtails used to roam.

///



LYNN COOL, MUSTANGER, EXPLORER, TRACKER, TRADER, OUTDOOR CHEF, FISHERMAN, BIG GAME GUIDE AND GILA BEND'S FIRE CHIEF.



"Sonny," said Hard Rock Shorty to the divinity student whom he had hired for a summer job at the Eight Ball Mine, "don't 'peer like yu and work are acquainted."

"Heck, Mr. Shorty," said the boy. "I filled a whole one of these cars with dirt yesterday, and today I'm working on this one."

"Thet ain't dirt, boy," said Shorty. "It's ore. An' one car a day is slower 'n slow. We had a one-armed Chineese cook who'd load a car while waitin' fer the dish water to heat up—three meals a day."

"Well, heck. I'm not going to make a career of this sort of work," said the lad.

"Lissen, boy," said Shorty. "A man's got to do a lot o' kinds o' work in this life."

"Maybe in your day," said the college student.

## HARD ROCK SHORTY



### ... OF DEATH VALLEY

"This is my day!" said Shorty. "I'm alive 'n breathin'!"

"I suppose you pleased every employer you worked for," said the young man with a touch of sarcasm in his voice.

"I'll tell yu somethin'," said Shorty. "I'm old enough to be grandfather to th' president of the U.S.—and this was true

even when Eisenhower was in—and only oncet did I ever lose a job.

"An' thet oncet," Shorty hastened to add, "waz no fault o' mine."

"Go on," said the young man.

"It waz in '08 or '09. I had a regular freight run from Tonopah south to Barstow—drivin' a span o' mules.

"Did I say drivin'?" Waz more like fightin' to get them animals across th' desert.

"But I never missed a connection at either end until thet preacher bringin' th' gospel to th' Panamint Indians started hitchin' rides with me regular. Seems like every time I'd drive around a bend, there he'd be awaitin' to climb aboard.

"Well, sonny, with thet preacher around it got so them mules couldn't understand me, and they jest plain did wot they pleased—which waz to lay around in a cool place doing nothin'."

## Cool Country In Southern Arizona

—continued from page 9

south slope through fine stands of giant saguaros, spectacular rock formations and pine forests to Summerhaven, 7700 feet, 40 miles from town. Here are lodge, cabins, store, and saddle horses for rent. Along the highway are three picnic areas, a campground, trailer park, summer home colonies and a small artificial trout-stocked lake. Summerhaven can also be reached by a narrow, winding 21-mile mountain road from Oracle, on the north side. Top point is Mount Lemmon, 9185 feet, now site of an Air Force Radar station and closed to the public, but good trails lead to high-perched Lemmon Rock and Bigelow fire lookouts, beautiful Marshall Gulch, and the unspoiled Butterfly Peak and Santa Catalina natural areas. Being Tucson's air-conditioned penthouse, this highly developed recreation area is apt to be crowded on weekends and holidays.

The heavily forested upper slopes of the Rincon Mountains, just east of Tucson, are mostly in Saguaro National Monument, and can be reached only afoot or horseback. A 12-mile trail climbs the south side to picturesque Manning Camp, 7900 feet, in a pine grove beside a green meadow. From there skyline trails lead to Spud Rock, with sweeping views over Tucson and the desert, traverse broad, round-topped Mica Mountain, 8700 feet, to Spud Rock Ranger Station, and return through a gap in the summit ridge. There is also a route up the north side of the Rincons, and for the ambitious there is trailless Rincon Mountain, 8465 feet, five miles south.

The Santa Ritas raise their pointed peaks against the sky 40 miles south of Tucson. At Continental, on U.S. 89, a 13-mile graded road branches southeast to Madera Canyon Recreation Area, 6000 feet. There, in the heart of the mountains, are four public campgrounds, resort, and the start of a six-mile trail to the rocky cone of Mount Wrightson, 9342 feet. North, a panoramic pathway follows the high crest, then descends steep-pitched Florida Canyon to another road-end. Along the ridge are stupendous views and fine forests. These mountains are noted as an outstanding bird locality, and the abundant wildlife of the Santa Ritas, Huachuclas and Chiricahuas includes the exotic, long-snouted coatiundi and the peccary or wild pig.

With their south end over the line in Mexico, the Huachuca Mountains extend northward into Arizona for 20 miles. Their alluring trails hold special charms for hikers. State 92 follows the east base, and short dirt spur roads penetrate several mountain canyons from which trails climb to the divide. High point, Miller Peak, 9466 feet, may be ascended by a steep six-mile forest trail up Miller Canyon. In Carr Canyon a narrow twisting mining road leads to the Reef, 7000 feet, eight miles, and from there a delightful high-line hike leads over the shoulder of Carr Peak to Miller Peak, seven miles. A 25-mile ridge trail winds along the tops of the Huachuclas north from Montezuma Pass, 6500 feet. This gap, near the Mexican border, is in Coronado National Memorial, established recently to commemorate the famed Spanish conquistador's entrance into Arizona in 1540.

Rising like a giant rampart between the treeless expanses of Sulphur Springs and San Simon valleys, the Chiricahua Mountains contain a rugged wilderness of forests, canyons, lofty ridges and fantastic rock formations. Culminating summits are Fly and Chiricahua peaks, both 9795 feet elevation. Along the backbone of the range is a 20-mile trail. It traverses the roadless 18,000-acre Chiricahua Wild Area through stands of pine, fir, spruce and aspen, crosses open flower-spread parks and comes out on rocky points with superb views.

Several fair dirt roads lead into the Chiricahuas. One surmounts the divide by way of pine-shaded Rustler Park, 8400 feet, a favorite camping spot, and threads narrow rock-walled Cave Creek Canyon on the east side. At its foot is the pleasant mountain community of Portal. Fishing is fair, and there are accommodations as well as improved campgrounds along the creek. In a slightly situation between towering pink, yellow, and brown cliffs is the Southwest Research Station of the American Museum of Natural History. Scientists come here from all parts of the country to study the exceptional flora, fauna and geology of the region. Another road leads to west-slope Turkey Creek Recreation Area, and a third ascends Rucker Canyon to a popular artificial fishing lake.

In the northern part of the range, also

on the west side, a blacktop road reaches Chiricahua National Monument. Locally called the Wonderland of Rocks, this 17-square-mile area includes a remarkable maze of clustered stone formations eroded from an ancient rhyolitic lava flow. Beyond Monument Headquarters, the road ascends to Massai Point, 6850 feet, on the summit ridge, where a startling view of jumbled rocks is spread out below. Trails lead to Heart of Rocks, four miles, Echo Canyon, four miles round trip, Sugarloaf, 7308 feet, 1 mile, and Rhyolite Canyon. The Park Service maintains excellent camping facilities in Bonita Canyon, and there are also guest ranch accommodations and saddle horses for hire in the Monument.

Highest in southern Arizona, the huge rounded top of Mount Graham has an altitude of 10,713 feet, and is the culminating point of the Pinaleno Mountains or Grahams, as they are usually called. This range soars 7000-8000 feet above the Gila Valley and contains 400 million board feet of timber. The Grahams have been developed for summer recreation, and are easily reached by the Swift Trail, a 32-mile graded road which is one of the most scenic drives in Arizona. The route leaves U.S. 666, seven miles south of Safford, and climbs the east side to the crest. On the way are several campgrounds, a small rustic lodge, store and cabins at Turkey Flat, 7400 feet.

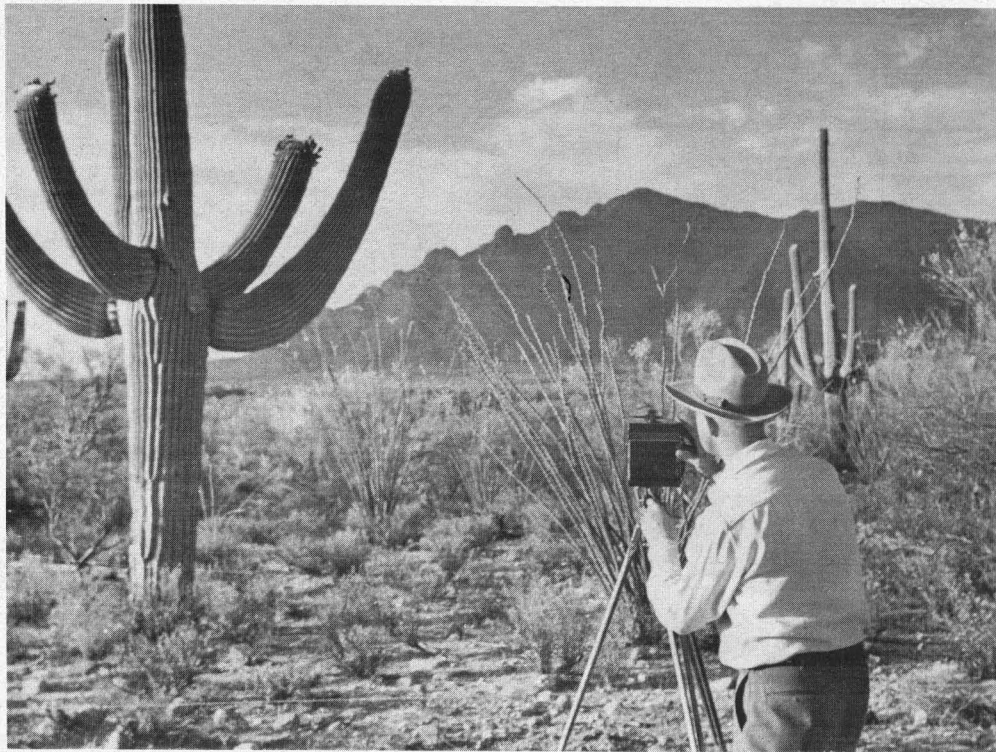
Surmounting the summit ridge beyond, the Swift Trail winds for 13 miles among the mountaintops at elevations of 9000 to 9600 feet through a delectable forest-and-park country. Wildlife is abundant and deer, bear and wild turkeys are often seen. Now and again tremendous panoramas open up, and short side roads climb to fire lookout stations atop Heliograph and Webb peaks, both over 10,000 feet altitude. There are four forest campgrounds in this high country and a summer home colony at Columbine. The Pinalenos have an extensive trail system and hikes may be made to Mount Graham and other summits, and fishing is fair in Grant, Ash and Marjilda creeks. Both the Chiricahuas and Grahams are ideal for three- or four-day knapsack trips.

So, it can be seen that southeastern Arizona's mountain ranges are places of great variety and charm, which deserve to be better known than they are. For these oases in the sky provide nearby and easy-to-reach summer vacation retreats that are unsurpassed anywhere. ///

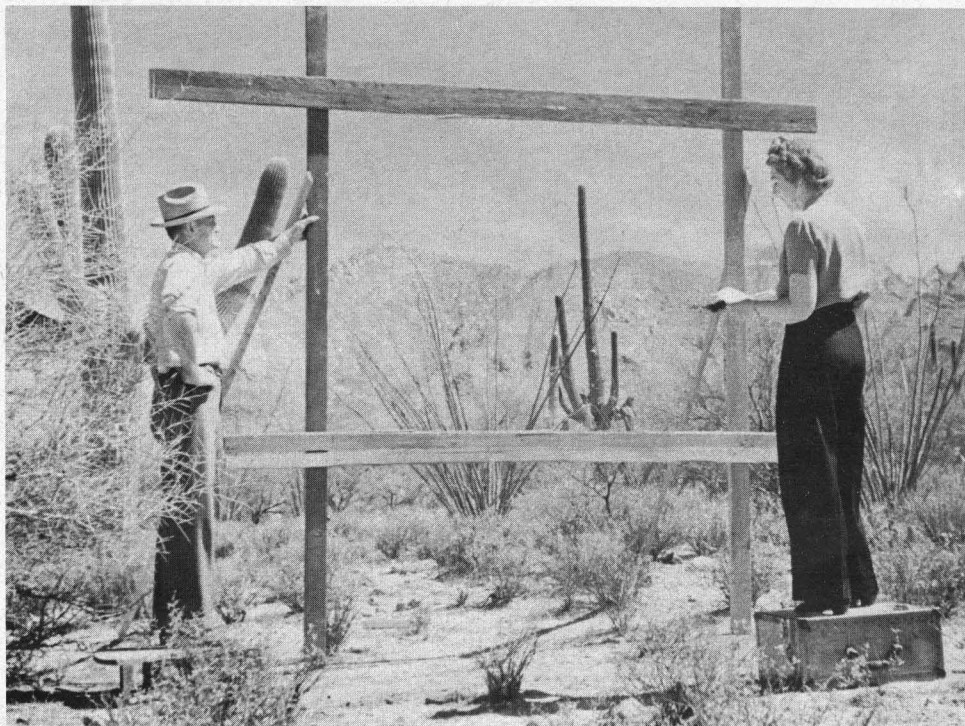


# Framing the View...

Before  
you build  
a home on  
the desert,  
check  
the views  
from your  
property



— and the best way to do this is with a camera. When you decide which



picture  
you like  
best,  
frame it  
with rough  
boards, and  
double-check  
every detail  
of your  
desert vista  
by  
scrutinizing  
it through  
the frame  
(stand on a box  
to compensate  
for the fill-in  
required for  
the floor).  
Then build your living room



THE DESERT, with its fantastic plantlife and vast stretches of rugged mountains, offers many opportunities to bring fine outdoor scenes into the home by means of a well-placed picture window. But all too often, home builders pay less attention to pre-selecting such a view than they do choosing a porcelain elephant for their knicknack shelf.

Every building site in the desert does not automatically provide the essentials for a pleasing picture window. Nor can such be had by merely requesting the architect to include it in the house plans.

As a professional photographer, I confess to being biased in this matter, but I believe that the construction of every home should start with the photographer. Commission a good one to search the empty building site with camera-eye out for pleasing pictures. After examining the photographs of several potential views, the owner should select the one he wants to live with and show-off to visitors.

Next step is to confirm the view and guide

the builder. Erect a rough-board frame—same size as the desired window—in the exact spot where the window will stand. Then stand back and examine the view.

It is well to scrutinize the picture encompassed in the frame from both a sitting and standing position (being sure to allow for the intended level of the floor). This eliminates the possibility of the picture being cut off top or bottom, or other important aspects of the view blocked when a person stands up or sits down. Also, it serves as a check against including unpleasant aspects of the surrounding area in the picture.

Consider too the bright desert sun. Stand behind the frame in the morning, at noon and in the evening. Sometimes, objectionable glare can be eliminated by moving the frame a few degrees one way or the other.

When the desired picture is captured, build the house around the frame.—CHARLES W. HERBERT  
///



om around the frame. This procedure guarantees a picture window that captures your favorite view — and not your neighbor's garbage cans.



**M**OST PEOPLE REGARD the pocket gopher as a pest. Concentrated in large numbers, these unbeautiful creatures may prove to be real nuisances to the desert home gardener and farmer. The gophers' labyrinth of tunnels interfere with man's efforts to effectively irrigate his fields and orchards. And gophers sometimes undermine the shoulders of highways, causing severe damage.

But within their natural wild habitat, the smoke-gray gopher is a valuable citizen. In a certain sense he is like Darwin's earthworm, doing a big job of turning over earth and adding valuable humus as well as nitrogen to the soil.

Numerous and conspicuous mounds of fresh earth, each from one-and-a-half to two feet across and from five to six inches high, are a tell-tale sign that gophers are about. These mounds are made by the animals ridding their subterranean galleries of excess soil as they excavate underground in their unrelenting search for food in the form of roots, bulbs and tubers.

About the only time gophers see the sunlight is when they push a load of dirt out the opening. And once they have taken out all the soil they deem necessary, the opening is plugged up to keep out enemies. Until the gopher surfaces again, it must live for many hours in total darkness.

The whole cylinder-shaped body is organized for this underground existence. It is thickly covered with soft fur for conserving heat and keeping out dampness. The head is flattened, particularly in older animals, and is joined to the muscular compact body by an indistinct neck. Eyes and ears are small. The short tail, like the long vibrissae of the face, is a very sensitive organ of touch enabling the animal to run backward as well as forward in the tunnels with equal speed and facility. Both fore and hind limbs are powerful earth pushers and movers. The forefeet are fitted with unusually long claws for digging, and on the sides of the toes are rows of stiff bristles to prevent dirt from slipping between them. The mouth is divided into fore and aft chambers by the fleshy tongue and infolds of skin, so that when gnawing or using the teeth as diggers, no chips or earth enter the mouth proper.

How does the animal fill and empty those fur-lined external cheek pouches which give it its name, pocket gopher? In putting food in (usually one pocket is filled at a

time) the hands are used. Either by a quick wiping movement or by pushing, the solid morsels or grass cuttings are inserted. In some cases, one of the fore-claws draws the lower side of the pouch down while the other paw pushes food in. It is all a bewilderingly quick process and considerable patient watching is required to determine how it is actually done.

In removing food from the pouches, both front feet are simultaneously brought far back alongside the head and then pressed firmly and rapidly forward. At times one such motion is sufficient, but two or more forward sweeps may be necessary for complete emptying.

In looking at the skull of this strong rodent, one is immediately impressed by the large size of the upper and lower jaw bones. This development provides the very firm anchor for the big masseter muscles which raise the lower jaw and assist in mastication, as well as the teeth, especially the large incisors up front. These foreteeth never stop growing—a very wise provision since they act as great chisels and are continually wearing off at the cutting edge. Their roots extend far back: the lower ones curve under the molars and to the very end of the massive mandible. It is an anchor commensurate with the heavy chiseling, shearing and cutting required of these important teeth.

Fossil remains of pocket gophers go back to Tertiary times. At present these animals are wholly North American in distribution. Ten genera, divided into many species with at least 441 subspecies, are known to occur from southern Canada to Panama. They reach their highest development in Mexico and it is quite probable that they worked their way both north and south from this center. In our western deserts the genus *Thomomys* (pronounced Tho-mo-mis and literally meaning "heap-mouse") is widely represented. Particular subspecies are often very local, different gophers often being found in close proximity. Thus the subspecies *perpallidus* is known in Palm Springs, California, while at Cabazon, just a few miles distant and a little higher in elevation, lives the subspecies *cabazonae*. Almost every desert valley and basin has its own kind of pocket gopher. Although each differs anatomically in some distinct way from its neighbors near and distant, to the average observer they all look very much alike.

Recently, heavy local showers visited the high pinyon-covered mountains behind Rattlesnake Canyon, and enough water ran from the steep

slopes to send a small but noisy flood down the sand and gravel wash bottom. There it spread out and moistened the long-thirsty earth to a depth of several feet. Early the next morning I found "old man gopher" at work pushing up moist sand to form mounds above his cavernous subterranean tunnels. Before seven o'clock, there were six heaps showing that he had been unseasonably and enormously stimulated to labor by the presence of moisture.

Late that evening he was at it again, determined to enlarge his domain while yet it was possible. Each time I saw him push up his load of soil I could for a moment glimpse his strange blunt head, with its prominent fore-teeth, bewiskered face and beady black eyes. After the merest

# THE UNLOVELY POCKET GOPHER

By  
EDMUND C. JAEGER

upward glance toward the open sky, he was ready to go back for another load of earth. The briefness of his appearance is accounted for by his desire to avoid undue exposure to an owl or other enemy that might be alerted by his movements and be tempted to try to snatch him up for an evening meal. The need for wariness must be forever on the gopher's mind.

The primary purpose of the pocket gopher's tunneling is to obtain access to roots and underground plant stems. Secondly, the tunnel furnishes protection from enemies as well as a shield from extremes of heat and cold. On the desert we are most apt to see gopher mounds in the loam, sand, and gravel about the bases of bushes, perhaps because the litter of leaves and the shade keeps the soil more cool and moist and thus more workable over a longer period. I find earth mounds under *larrea* bushes,



in amongst ephedras, thorny lyciums and salt bushes and once in a while even under cacti, especially the flat-stemmed opuntias.

Dr. C. Hart Merriam, long connected with the Biological Survey of the U.S. Department of Agriculture, thus describes the pocket gopher's construction of its tunnels: "(They) use the powerful incisors as a pick to loosen the ground. At the same time the forefeet are kept in active operation, both in digging and in pressing the earth back under the body, and the hind feet are used also in moving it still farther backward. When a sufficient quantity has accumulated behind the animal, he immediately turns in the burrow, and by bringing the wrists together under the chin, with the palms of the hands held vertically, forces himself along

birth to a litter of two to six or seven young. The number of litters each year is one or occasionally two, depending a great deal on the amount of available food.

The babies, each weighing but a fraction of an ounce, are at first pinkish in color and with much loose wrinkled skin. In some species the unique external cheek-pouches are at first represented by mere deep wrinkles along the side of the mouth opening, but in others the fur-lined sacs appear to be well-formed even before birth. The small eyes and, at first, sealed ears, are said to open after the fifth week. Little squeaks come from the tiny throats as the babelets seek the mother's nipples. By the time they are eight weeks old they are wholly on their own, eagerly digging for roots and underground stems.

lupines may be seized from below and literally pulled underground.

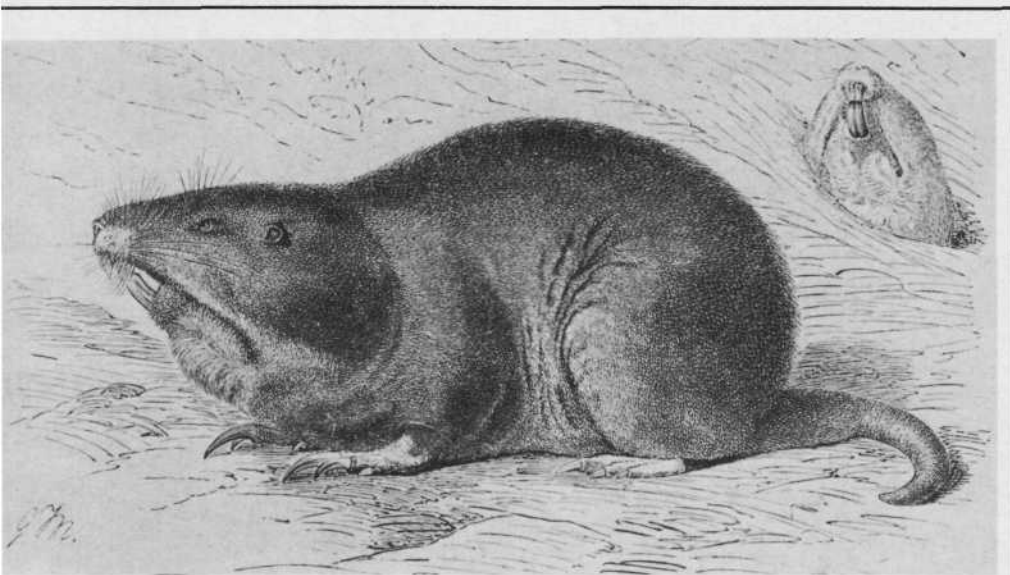
Usually there is but one gopher to a tunnel. Only at mating time or when young are with the mother can more than one be found there. If by chance another enters, there is immediate resentment and the intruder is driven forth by the "ferocious isolationist" that is in possession.

Except when forced to anger or when confronted by an enemy, this rodent leads a life of sullen silence. Anger caused by the affront of another gopher causes it to emit a "wheezy call" at frequent intervals, often accompanied by much gnashing and chittering of teeth.

One evening just at dusk after having spent many minutes watching the mound building activities of a gopher from some distance by use of powerful binoculars, I witnessed a "once in a lifetime" sight. From out of the low brush came a hungry bob cat. Alert and watchful, he had spied the gopher as it pushed up armfuls of soil. The bob cat knew the proper method of the hunt and the rewards brought by patient watching. Quietly and slowly he now advanced to within about three feet of the working gopher's hillock of earth; the cat sat down, and with patient feline eye watched until the rodent again came to the surface. Then with an agile leap and an almost simultaneous thrust forward of the bent forepaw, the bob cat flipped the gopher out, throwing it well away from its hole. He quickly crushed the unfortunate creature in his jaws, and carried it off into the brush to eat.

It is very intriguing to find that in arid parts of the Old World (Syria, Mesopotamia, Persia and lower Egypt) there is an animal called the great mole rat, which although only distantly related to our North American pocket gopher, has almost the same habits and body structure. It possesses the same chisel-like prominent incisors, small eyes and ears, and is able to move with equal ease backwards or forwards in the tunnel. Its food, too, is similar. It differs mostly in possessing no external cheek pouches and in having smaller claws on its short strong feet.

It may be remarked here with interest that gopher or molelike habits are common to several groups of smaller mammals in widely separated parts of the globe. Australia has its marsupial mole, South America its tucutuca, and South Africa its golden mole. ///



POCKET GOPHER. THIS DRAWING IS FROM "THE ROYAL NATURAL HISTORY," PUBLISHED IN 1894.

by the hind feet, pushing the earth out in front. When an opening in the tunnel is reached, the earth is discharged through it, forming a little hillock that in a general way resembles the hills thrown up by moles."

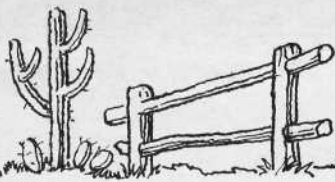
The tunnels meander endlessly so that the total length of the runways may measure up to many hundreds of feet. For the most part they are not far below the soil surface (six or eight inches), but the nest and the food storage chambers where they lay up caches of grass, roots, herbage and root chips may be much more deeply placed, even up to two or three feet below. Pocket gophers are on the whole meticulously clean beasts, and excavate special chambers for use as "bathrooms."

A typical nest is made of leaves and shredded grass, and placed in a spherical *cul-de-sac* opening off a main runway. Here the gray hermit may sleep or, if a female, later give

Such young gophers are occasionally seen crossing the desert highways at night in search of new homes. At other times, adults may be observed wandering about: these may be males seeking mates. As a rule mating takes place in the tunnels during the winter (November through February) on our southern deserts. Or sometimes a wandering animal may take to the open to leave a drouth-stricken area where all the herbs have died, to seek a more favorable habitat.

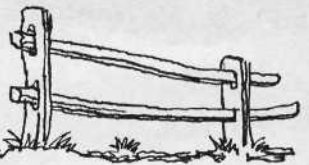
In the desert's period of great summer heat, I suspect that pocket gophers spend much of their time quietly sleeping the hours away, only occasionally arousing themselves to eat their stores of food cached during better times.

The pocket gopher's food preferences are numerous. Where bermuda grass grows around seeps and springs, the roots are very much sought. Other grasses and succulent herbs such as



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THE TERRIBLE CHASM: HOLE-IN-THE-ROCK

## BY POWER SCOOTER THROUGH THE WILD RED YONDER . . .

Six men on a once-in-a-lifetime trek  
learn first-hand why historians rate the 80-year-old  
Escalante-to-Bluff trail the toughest  
wagon road ever hacked out of the American wilderness

By  
**Eugene L. Conrotto**

"AT THE SUGGESTION of Apostle Erastus Snow . . . the decision was reached to plant a colony somewhere in the neighborhood of the 'Four Corners' where the territories of Utah, Arizona, New Mexico, and the state of Colorado cornered together."—Preface to the Writings of Kumen Jones

"In all the annals of the West . . . there is no better example of the indomitable pioneer spirit than that of the Hole-in-the-Rock expedition of the San Juan Mission. No pioneer company ever built a wagon road through wilder, rougher, more inhospitable country, still one of the least-known regions in America. Today their feat seems well-nigh impossible."—DAVID E. MILLER

CURTIS VIK AND I rode the night train from Indio to Phoenix. Bill Kimball, whom we had never met, was waiting for us at the depot. He spotted us right off because we were carrying duffle bags.

After breakfast we drove to Sedona and picked up Elmer Purtyman. In Flagstaff, Elmer's brother, Bud, threw his gear into the trunk, and slid into the front seat.

We hurried north into the wide rolling Navajo country. Beyond The Gap we could look west across a vast red tableland interrupted only by the black gash of Marble Canyon, holding in its unseen depths the flow of the Colorado River.

We stopped to stretch our legs at a highway bridge spanning a deep narrow side canyon. On a boulder far below lay a dead colt and a dead dog that had wandered too close to the right-angle edge of this gorge. Nothing gentle or gradual or compromising about this country. Although there were more settlements along the highway ahead—Page, Kanab, Orderville, Henrieville and Escalante—the wilderness started at this bridge for us.

We met Bill Berry in Escalante. He was the originator of this idea to make the first complete coverage of the Hole-in-the-Rock trail, from start to finish in one continuous trip, since the road was abandoned in 1881. And this would be the first (and undoubtedly the last) all-mechanical conquest of the trail: with jeep and pick-up truck as far as the Colorado; by motorboat across the river; by power scooter through the broken country on the east side of the Colorado to where the jeep and pick-up truck (having circled around by way of Hite Ferry) could pick us up; and then to Comb Wash near trail's end where we would once again transfer to power scooters for the last leg of the trip.



The two remaining members of our party, LaVon and Lucile Johansen, had established camp down the trail near Ten Mile Spring. We joined them there at dusk.

"JUST WHY THE mission leaders decided on the Escalante 'short cut' through the Hole-in-the-Rock has never been fully explained."—DAVID E. MILLER

TO UNDERSTAND THE thinking behind the decision to create this fantastic wagon road, we must examine conditions and events of the early months of 1879.

The Mormon Church had issued a call among the faithful in the recently settled southwestern sector of Utah

to colonize the no man's land of the territory's southeastern corner. Church leaders wanted Mormonism extended into this unknown and isolated territory for two basic reasons: to spread the faith; and to establish a buffer zone against encroachment by cattlemen moving west from Colorado and New Mexico, and Indians moving north out of Arizona.

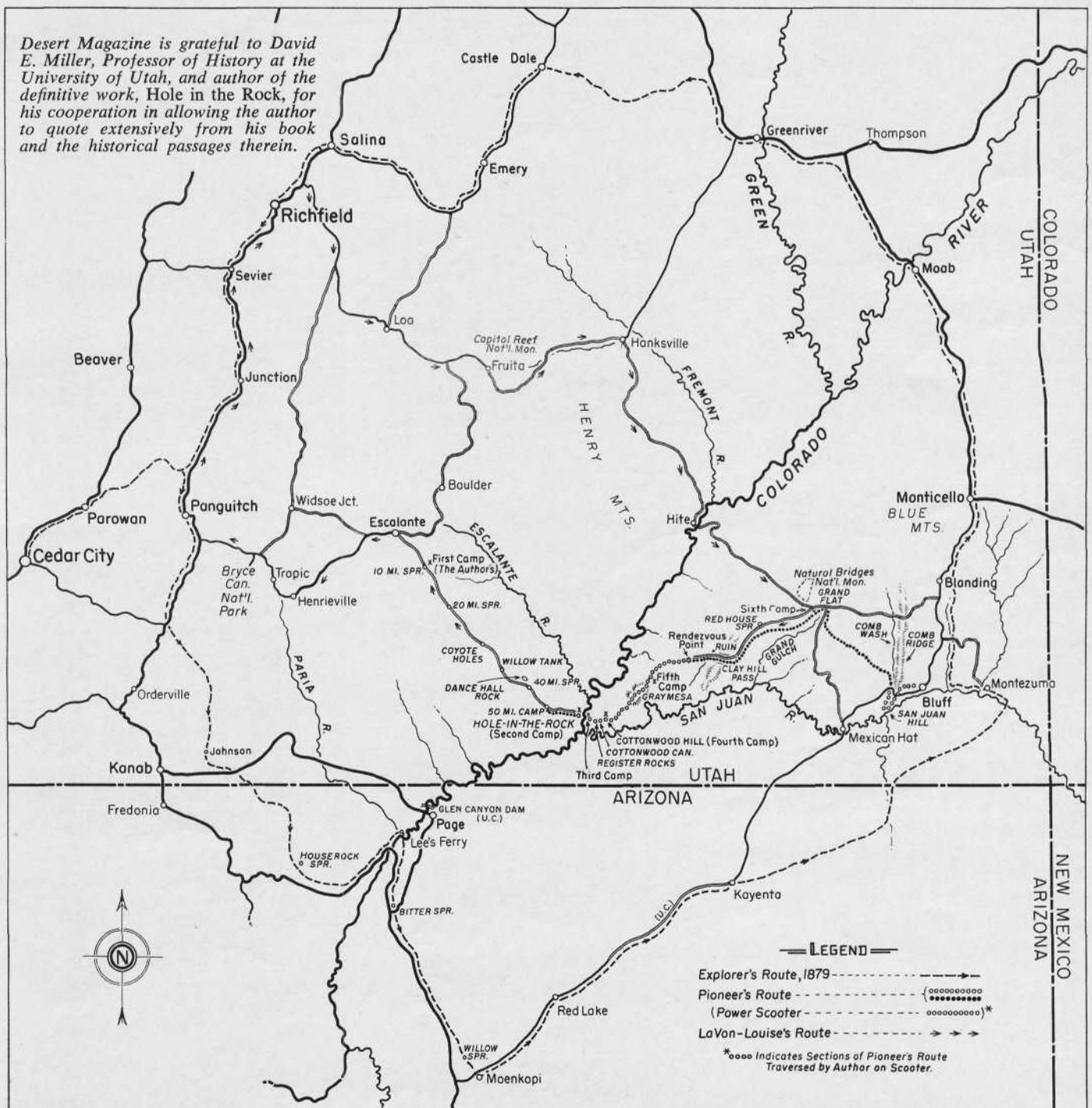
Two known routes lay open to the 250 men, women and children who had answered the call to San Juan. Both were circuitous, as the map on this page plainly shows.

The northern route—actually the Old Spanish Trail—would mean a

trip of 450 miles to reach a point 200 miles due east. And the southern trail by way of Lee's Ferry and Moenkopi was ruled out because a small exploring party, which left Paragonah on April 14, 1879, came back with a report that the Indians along the way were not friendly, and the land was too meager in grass and water to sustain a large train.

The cry went up for a short cut—a direct way to the San Juan—a permanent road that would serve as a lifeline for the colony after it was established.

Despite the fact that the short cut had not been adequately explored,



## Manhandling the Machines Down Hole-in-the-Rock . . .



zeal tipped the scales in its favor. Into 83 wagons went provisions for a six-week trip, but before the 200 miles to the San Juan were covered, the pioneers would spend six months on the trail.

**"THE PEOPLE OF** Escalante, on hearing of our coming, held a convention and raised the price of everything we would be likely to need, almost double what it was before. Before we left our homes we were told that the country had been explored, and that the road was feasible. But now we found that someone had been mistaken."—SAMUEL ROWLEY'S AUTOBIOGRAPHY

**OUR FIRST CAMP** at Ten Mile Spring was typically unorganized, and to add to the confusion a light rain began falling soon after we settled into our sleeping bags. We threw our plastic tarps over our heads and tried to dream of blue skies.

One night you're sitting at home sort of half-awake watching television; the next you're lying in the rain out in the middle of nowhere. The value of wilderness—the reason modern man needs it so desperately — is that it makes us appreciative of modern life's taken-for-granted conveniences.

Next morning, the clouds were 10 feet off the ground—but it was morning and the miracle that is morning on the desert was not to be denied.

Time now for you to meet my wilderness mates.

Bill Berry, 34, of Provo, Utah. Bill heads Bonham Corporation's public relations department for the Tote Gote power scooter. But don't confuse Bill with the conventional PR-Man image. He is an outdoorsman, with all the acumen and savvy of all his predecessors on the particular trail he happens to be traveling — from Indian scout to Mountain Man to prospector to wagon master. Before our little adventure was over, I acquired great respect for the likes of Bill Berry.

Bill Kimball, 36, of Phoenix. Kimball is Bonham's Arizona and south-eastern California Tote Gote distributor. He too is a capable and experienced outdoorsman—a big fellow with dark eyes set wide apart on an open face that periodically breaks into a broad grin. He speaks in a crisp, distinctive manner. Like Bill Berry,

Kimball is from Colorado. He spent his boyhood hunting and fishing and roaming the mountains.

Elmer Purtyman, 57, Justice of the Peace of Sedona. Elmer was the party's "wise old chief"—a colorful and salty character born in Arizona's Red Rock country, and today alternating his time between judicial duties and exploring (mostly on river expeditions) the northern Arizona and southern Utah country. Elmer takes movies of his trips and shows them on Phoenix television. Small and tough and hard as nails, he is a walking storehouse of wilderness experience. He had every mile of the 200 ahead of us "pegged," and knew what the next hour's weather would be. Elmer told us when to fill our canteens and when not to bother about hauling extra water. He told us which direction the wind would blow at night and where we would eat lunch the following day.

Bud Purtyman, 35, of Flagstaff. Bud is Elmer's brother. He provided the comedy relief on this trip—a true comedian every inch of his 6'3" frame



(Bud says he is 5'15" because it "sounds shorter"). I do not exaggerate when I say Bud supplied us with one good hard laugh at least once an hour—day and night—from the time we left Ten Mile Spring until we pulled into Bluff a week later. During the more difficult parts of the trip, his humor was our most important crutch. But, all connoisseurs of humor realizing that it is not what a person says, but how he says it that marks the true comedian, I will limit my direct quotes of Bud's remarks in the story following. The man is blessed with the two qualities of character that count most in the wilderness: cheerfulness, and a willingness to pull more than his share of the load.

Curtis Vik, 38, of La Quinta, Calif. Curtis is my neighbor. Weeks before we made this trip, Bonham loaned two Tote Gote demonstrators to Curtis and me to practice on. Together we plowed trails all over the La Quinta cove. We rode through sand and malpais and even tried a rocky mountain trail. We did everything but carry our Tote Gotes—and this, as it proved later, was the one thing we should have spent more time practicing. Curtis is an American statistic. An ex-teacher, he quit because of the low pay (he has five children) and is now a successful plumbing contractor.

LaVon and Lucile Johansen of Orem, Utah. The Johansens took a week off from his job at Bonham's plant and her job at home raising five children, to ferry the four-wheel vehicles around to the other side of the river. LaVon and Lucile are a

fine young couple, exuding the wholesomeness that stems from the Mormon emphasis on family upbringing.

"FROM THE SUMMIT the trekkers had a 75-mile view ahead—to the southeast along the face of Fifty-mile Mountain all the way to the Colorado, and even beyond. And what they saw was not heartening. Although it was a beautiful and awe-inspiring sight, the country appeared enormously rugged to the band of pioneer road builders—who were not there to take pictures and admire the scenery."—DAVID E. MILLER

"Friday, Nov. 21st, 1879. Drove 3 miles to the Ten Mile Spring but could get no water for our horses . . . We then drove 10 miles over a soft sandy road crossing several deep gulches where we had to double teams, and camped at dark at the Twenty Mile Spring, where there is plenty of good feed but very little water."—JOURNAL OF PLATTE DeALTON LYMAN

WE LEFT TEN MILE Spring after breakfast, traveling in three vehicles: jeep, pickup truck and Kimball's Valiant. The six Tote Gotes rode on a trailer behind the truck. Between sneezes, I felt the mercury drop 10 degrees. It was bitter cold and the clouds were not breaking up.

A bladed road, 64 miles in length, connects Escalante with the Hole-in-the-Rock at the river. In dry weather, a passenger car has no trouble negotiating this stretch. At first, the terrain is level, and the road passes through handsome little cedar thickets that provide pleasant camp sites. Kaiparowits—the "Fifty-Mile Mountain" of the pioneers that was their barrier to the south—dominates the landscape.

Beyond Ten Mile Flat the trail enters the ravine country. At first these washes cutting through the red clay are gentle and nothing out of the ordinary in desert country. But the farther southeast we proceeded, the deeper and steeper became the gashes in the earth until our road plunged into some whoppers near the river—miniature Grand Canyons, our first inclination as to why historians consider the 1879-80 wagon road the most difficult ever built in America.

"WE HAD NOT GONE far when we met a party of prospectors returning with burro packs. The prospectors told us it would be useless to attempt to make a road where the proposed route had been pointed out, saying, 'If every rag or other property owned by the people of the Territory were sold for cash, it would not pay for the making of a burro trail across the river.'"—KUMEN JONES: GENERAL MOVE TO THE SAN JUAN MISSION

THE RAIN THAT HAD fallen the night before—and which threatened now as we bore down the road—was a blessing in disguise (or so we rationalized), for the red dust was settled and the road surface hard-packed. By mid-morning, my feet were so cold I was straining for all the plus factors my mind could manufacture.

The closer we drew to the river, the more slickrock sandstone we encountered. Sprinkled along the road were markers and directional signs: Scorpion, Early Weed, Cat Pasture, Coyote Hole Water, Big Hollow, Liston Seep, King Mesa.

At Willow Tank we filled our canteens. There is a cabin here used by the outfit running cattle through this range. The rain caught us at Willow Tank and we hurried on to Dance Hall Rock. Rain or no rain, we would have to see this first of the

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major landmarks along the 80-year-old wagon road.

"FORTY-MILE SPRING AND CAMP are located a short distance down the wash from Dance Hall Rock. This huge sandstone formation is so constructed as to constitute a large amphitheater with a relatively smooth floor. Pioneers of the Forty Mile Camp held dances at the 'Hall' and thus gave it its name. With three fiddlers in the company to supply music, several pleasant evenings must have been spent in this way. Modern-day venturers following in the wake of the Hole-in-the-Rock wagons, often stop there to enjoy a Virginia reel on the rocks."—DAVID E. MILLER

THE RAIN WAS NOW coming down in heavy sheets, but we could not leave Dance Hall Rock without a dance. This was performed by Bill,

Elmer and Kimball (may the generous spirits of the departed pioneers forgive them) on Tote Gotes. They wove in and out on the sandstone floor, slapping one another's hands square dance style, and casting out some of the gloom falling from the sky. Curtis, Bud and I hugged the face of the red rock wall and thus remained relatively dry. How many pioneers used these very toe-holds and raised their eyes to the same sandstone swirls and ridges and boiling clouds that we looked upon from our perches? Rain is fine when you are warm and comfortably settled at home.

"FRIDAY, NOV. 28TH, 1879. . . we drove 10 miles over the roughest country I ever saw a wagon go over, and camped at the 50 Mile Spring."—JOURNAL OF PLATTE DeALTON LY-MAN

"From Forty Mile Spring southward the washes, gulches and canyons not only become progressively more numerous, but also much more difficult to cross. If the San Juan pioneers had merely succeeded in building a wagon road through that part of the country—to Fifty Mile Spring—and then returned to the settlements, their achievement would have been outstanding. But this was really easy terrain to cross compared to what lay ahead."—DAVID E. MILLER

LaVON, WHO HAD driven to Hole-in-the-Rock the day before, was for making camp in the Dance Hall Rock area.

"There are only two trees in the 15 miles between here and the slot," he said. "Looks like we're going to need firewood."

It was not yet noon, and sitting in a car the rest of the day was not an appealing prospect. Besides, Elmer stuck his craggy face into the sky and announced that the storm would soon blow over. It was moving north, he observed, and "Arizona weather" trailing behind the rain front would soon be with us.

And so we drove to road's end—15 miles over sandstone and blow-sand cut through with straight-walled canyons. When rain hits this country, there is nothing to soak it up—and so it runs, first in trickles down the side of rock faces, then in rivulets through the curving depressions between the larger rock masses, and when the streamlets converge you have an angry flood seeking the lowest possible level, which in this case is the Gulf of California via the Escalante and Colorado rivers, with brief stops at Hoover, Davis, Parker, Imperial and Morelos dams.

At road's end we walked up the short incline to the U-shaped slot blasted out of the 50-foot guard-rail cliff at the edge of the plain.

"THE EXACT WIDTH of this crack cannot be definitely determined. Most accounts agree that it was too narrow to allow passage for man or beast."—DAVID E. MILLER

"It was here that we spent our Christmas holidays in dancing, singing and merry making. For all that it was the hardest winter ever known in Utah everybody in both camps enjoyed the best of health and generally a good spirit prevailed." — WRITINGS OF JOSEPH F. BARTON

BILL BERRY SAID: "If anyone ever tells you faith can't move mountains, bring him to this slot."

No feature of landscape that I have ever seen impressed me as much as did Hole-in-the-Rock. A crack in the canyon wall widened to wagon-width by zealous men working to please God. From the top of the cliff to the river—a lineal distance of three-quarters of a mile—there is a 2000-foot drop in elevation. Some stretches of the old roadway plunge downward at a 45-degree angle.

The rains of 80 winters have wrought havoc on the slot. The sand and gravel that had formed the road bed have long since been washed away, and only boulders—some big as houses—repose in the passageway today. Visible on the rough face of the slot-sides are hewn initials, powder holes, chisel marks and scars left by wagon hubs.

Unchanged is the brown river be-



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low and the wilderness stretching from the east wall of the gorge to the horizon—150 miles of broken country without a single permanent habitation.

In the afternoon we packed food and gasoline cans half-way down the slot. It was one scramble after another over boulders, eroded ledges and loose rocks. Some vegetation has gained a foothold in the crack, but we found no other signs of life.

The killing part was the walk back to the top. The thought that sustained was a dry bed. Bill had offered the bunks in his pickup camper to Curtis and me in lieu of the fact we had spent the rainy night in the open and the night before that sitting up in the train. LaVon and Lucile had a pup tent, and Bill and Elmer would sleep in a two-man "igloo" tent. That left Bud and Kimball without shelter. As soon as we got back to camp, the two unfortunates hopped on Tote Gotes and searched the general area for a cave to sleep in, but with no luck. By the time they returned, the storm front was bearing down on us, having once more reversed its field.

We wasted little time with dinner. Bud and Kimball lashed a canvas and

plastic shelter to the side of the pickup. During the night I was awakened several times by the droning of the rain on the camper roof—this and the choice words our friends under the shelter were using to express their opinion of Utah in general and Utah weather in particular.

"WE CROSSED THE RIVER on the 1st of Feb. all safe; was not half as scared as we thought we'd be, it was the easiest part of our journey. Coming down the Hole-in-the-Rock to get to the river was 10 times as bad. If you ever come this way it will scare you to death to look down it . . . The first wagon I saw go down they put the brake on and rough locked the hind wheels and had a big rope fastened to the wagon and about 10 men holding back on it and then they went down like they would smash everything. I'll never forget that day. When we was walking down Willie looked back and cried and asked me how we would get back home."—ELIZABETH MORRIS DECKER'S LETTER TO HER PARENTS, WRITTEN FEB. 22, 1880

"The worst part of the road was the Hole-in-the-Rock at Colorado River. We had to blast through a big cliff large enough to let covered wagons through. It was so steep going through that we had to use horses to help hold the wagons back."—BRIEF HISTORY OF WILLIAM NAYLOR EYRE

"In order to get horses to face that terrible chasm, we had to drive up to the Hole then push on the wagons against the horses to start them thru."—HISTORY OF HENRY JOHN HOLYOAK

"The First forty feet down the wagons stood so straight in the air it was no desirable place to ride and the channel was so narrow the barrels had to be removed from the sides of the wagon in order to let the wagon pass through . . ."—MILTON DAILEY

" . . . putting mother and us five children out, he seated himself on the front wagon and started. Down they went in a flash and landed in the soft ground at the end of the slick rock slide . . . but one big mule was dragged and seriously hurt. How mother and the rest of the kiddies got down without harm; I suppose they were too scared to get hurt. I could hardly keep my feet under me it was so steep and slick . . ."—NATHANIEL Z. DECKER

WE WERE UP AT 5:30. The sky was gray with a streak of violet showing through the eastern portal, down which we were going to manhandle our Tote Gotes.

Elmer made a last pot of coffee. That is, he threw two handfuls of coffee into the blackened pot, added some rainwater from a nearby pot-hole, and put the whole on the coals to perk.

"The coffee you make is weak," he told Lucile. "Your hands are too small."

"I could throw in more handfuls of grounds," she said.

"But the recipe calls for only two," he answered.

What a job it was wrestling the six 130-pound machines down the slot! We worked them over, around and under boulders and rock ledges by

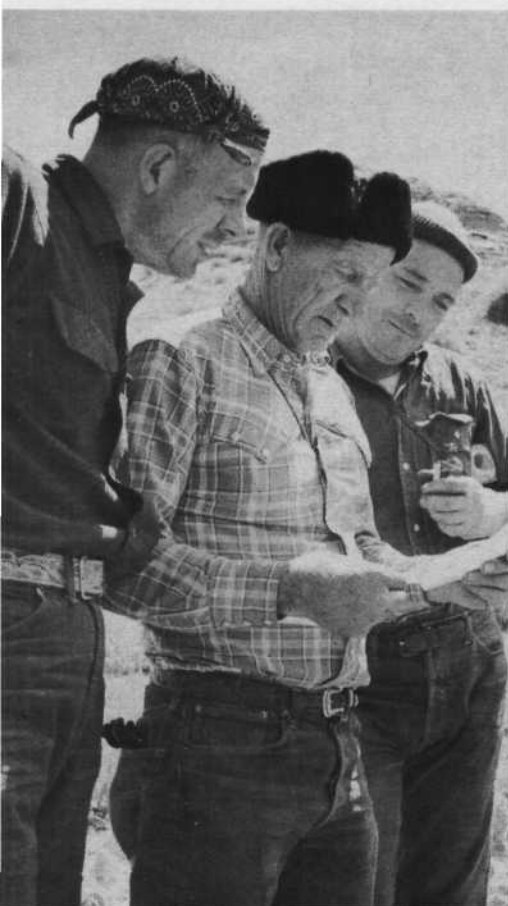


BUD PURTYMAN

literally passing the machines along from man to man.

By noon the worst of it was behind us, and we were exhausted. LaVon and Lucile spread a feast on a rock table: cold hot dogs, cold pork and beans, cold water. All indications of rain had disappeared.

In another two hours we were out



BILL BERRY, ELMER PURTYMAN AND BILL KIMBALL, FROM LEFT, READ THE NOTE DROPPED BY THE AIR PLANE. KIMBALL HOLDS "DEHYDRATED STEAKS."

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**GAY STAVELEY FERRIES MEN AND MACHINES ACROSS THE COLORADO**

of the rocks, but the mouth of the canyon is a jungle of river willows.

Curtis brought us to attention. While driving our Tote Gotes along a bank high above the main creek draining the side-gorge, his machine was nudged over the bank by a rock on the trail, and disappeared in a flash. Curtis did a perfect back flip, luckily landing on one of the few patches of soft ground between Escalante and Bluff.

His Tote Gote caught on some branches a dozen feet below where he had landed. The motor idled gently while we rushed about. The two Bonham men jumped down the bank, exclaiming over the fact that their product had taken the fall without missing one chug of its engine; Elmer and I whipped out our cameras; and Bud paid Curtis the courtesy of asking whether or not his back was broken.

We reached our immediate goal at 3:30 and collapsed on a sand bank at the confluence of the mighty Colorado and the gurgling creek carrying delicious water that only yesterday had fallen on us in the form of rain.

LaVon and his wife had made several trips from the cache midway up the side of the slot to the river, carrying down our food and gasoline supplies. And now they took their leave, heading up to the top where in the morning they would break camp, hitch the Tote Gote trailer to the Valiant, and the jeep to the pickup, and drive the 300 miles of dirt road to a point less than 50 miles due east of where we lay at river's edge. The thought that they and

not I had to make the Hole-in-the-Rock climb proved to be wonderful therapy for my aching muscles.

All we had to do was await the arrival of Gay Staveley and his motorboat.

"**THERE IS NO** physical evidence today to mark the exact location of the ferry landings on either side of the Colorado at Hole-in-the-Rock . . . It is very likely that the ferry operated from a point near the base of the Hole. Since a pair of oars supplied the only power, the ferry drifted downstream several rods at each crossing. Before making a return trip, it would have to be pulled back upstream to a point

well above the landing site on the opposite bank."—DAVID E. MILLER

"An old gentleman and his son drove a wagon onto the ferry boat with two yoke of oxen. The lead oxen were nervous and . . . they bolted and jumped over the railing, pushing the boy over with them. The old man fluttered here and there trying to locate the boy and was about to jump over after him . . . about the same time the boy came up and swam to shore several rods below the boat. Asked why he came up so far down from the boat he said he dove to get away from the oxen. The father said, 'Thank God. If I had jumped over I'd have drowned. I can't swim a lick. I didn't know the boy could swim.'"—NATHANIEL Z. DECKER

AS WE LAY ON the sand, enjoying the luxury of not being able to move one more yard eastward until the boat arrived, Bud observed that he had "About wore out my shoes, and I ain't hardly been on that Tote Gote yet."

After a half-hour more of this sort of unprofound observation, Bill looked up to see a speck round a bend far up-river. Gay had come down in one of his Mexican Hat Expedition 16-foot semi-cataract boats, powered by a five horsepower outboard motor. He had pushed-off from Hite, 77 miles upstream, on noon of the preceding day, but had spent most of the day in caves dodging the rain. He had planned to ferry us across in his new Jet Boat, but the power unit had not arrived in time.

I cannot say enough good things about this soft-spoken, self-reliant young man with so bright a future



**THE RIDERS APPROACH REGISTER ROCKS. V-NOTCH ON HORIZON MARKS HOLE-IN-THE-ROCK.**



on the Colorado when the reservoir behind Glen Canyon Dam transforms this country into America's choicest outdoor recreation mecca. Gay is very much a part of the big world in which he lives and works.

As is always the case on trips such as this, we all said we were going to take our time and do this and that, but the urge to push on is too great. Don't ask me why. No one had to be home at any specific time.

But, no thought was given to spending the night on the west bank. In four trips we had the Tote Gotes and gear across the river. We made camp on the long bar at the foot of the dugway leading eastward out of the river canyon. Gay tied his boat to a willow branch and spread his sleeping bag next to the six others on the sand. A roaring fire soon produced the coals needed to cook our supper. Into the coffee pot went a quart of silty Colorado River water which has the distinct advantage over other waters in southern Utah of looking like coffee even before the two handfuls of grounds are tossed in.

The sheer 2000-foot cliffs across the water changed to every red hue



FRESH WATER DAILY. FROM LEFT, BUD PURTYMAN, BILL KIMBALL, AND CURTIS VIK.

known as the sun sank behind them. Quite a bedroom! About once every five minutes a section of the bank would plop into the cutting river. Gay's bed was three feet closer to the river's edge than mine, so I slept without apprehension. I figured that in his line of work he had more reason than I to know and respect the Colorado.

But now they would start earning their keep. With sleeping bags, extra clothing, water, camera equipment, food, personal effects and gasoline cans strapped onto our machines, we mounted up and started off on one of the most pleasant rides I have ever taken.

In a matter of minutes we were at the Register Rocks, huge twin mono-

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"THE FIRST OBSTACLE on the east side of the Colorado was a sheer wall some 250 feet high . . . work crews . . . cut a dugway from the face of this cliff and thus prepared a road out of the river gorge. This road is a rather steep, narrow, dangerous cut . . ."—DAVID E. MILLER

"I don't think I ever seen a lot of men go to work with more of a will to do something than that crowd did. We were all young men; the way we did make dirt and rock fly was a caution . . ."—SKETCH OF MY LIFE BY C. I. DECKER

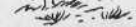
WE AWAKENED TO A dull sky specked with black clouds moving north. Elmer didn't look too happy. "Looks like our storm went down to the Gulf for another load of water," he said.

"Looks to me," corrected Bud, "that it made short shift of it by loading up at Lake Mead."

There was only one way out: east. Gay shoved-off after breakfast, and we faced the scrabble roadway. Unfortunately, the night's sleep on the soft sand had only centralized the aches in muscles punished the day before.

It took an hour and 15 minutes to push and pull the Tote Gotes to the top of the giant step leading out of the river canyon. We were about one airline mile from the Hole-in-the-Rock summit—24 hours to make one mile! So far the Tote Gotes were a decided hinderance to our progress.

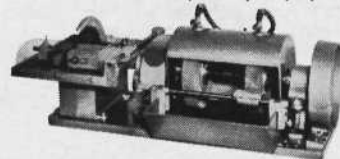
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THE FIRST STEEP PULL UP COTTONWOOD HILL

liths guarding the wagon road. All along the face of these rocks are inscribed the names and initials of Latter-day Saint pioneers and latter-day interlopers. We examined this 80-year-old ledger, and looked back at the angry scare of Hole-in-the-Rock dominating the western horizon.

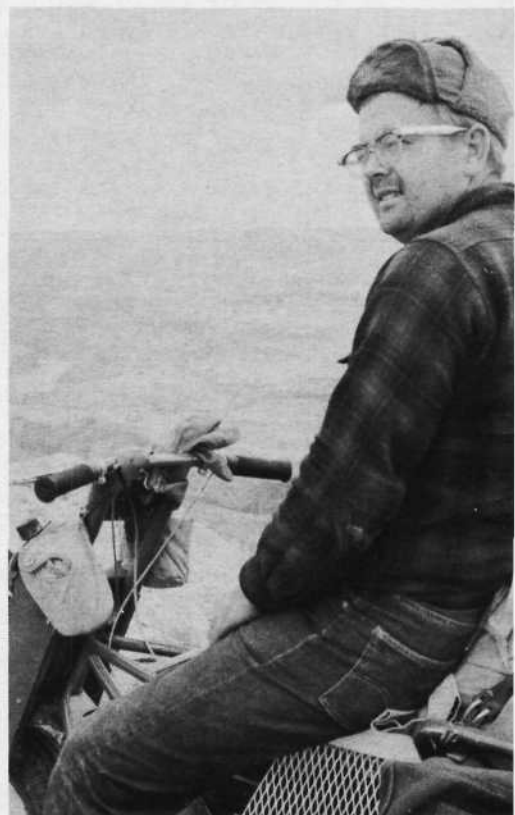
A few minutes more and we entered Cottonwood Canyon—a delightful anomaly in this country. Instead of being deep and rugged, this canyon is open and rolling. Down its bed flows a bubbling stream of delicious water, and around each bend the traveler is greeted with a stand of green waving cottonwood trees shading soft grassy banks, dancing waters and quiet pools.

The easy ride gave us our second wind, and there was time to explore. On the rim rocks to the right we examined an old cache complete with a weathered fur-stretching rack. The side-canyons draining from the north once teemed with Indians, and their silent cliff dwellings highlighted the beauty of this setting of cottonwoods, junipers, red sand, towering orange-brown cliffs and a blue sky flecked with white.

We ate a hot lunch on a grassy flat above the creek and then resumed

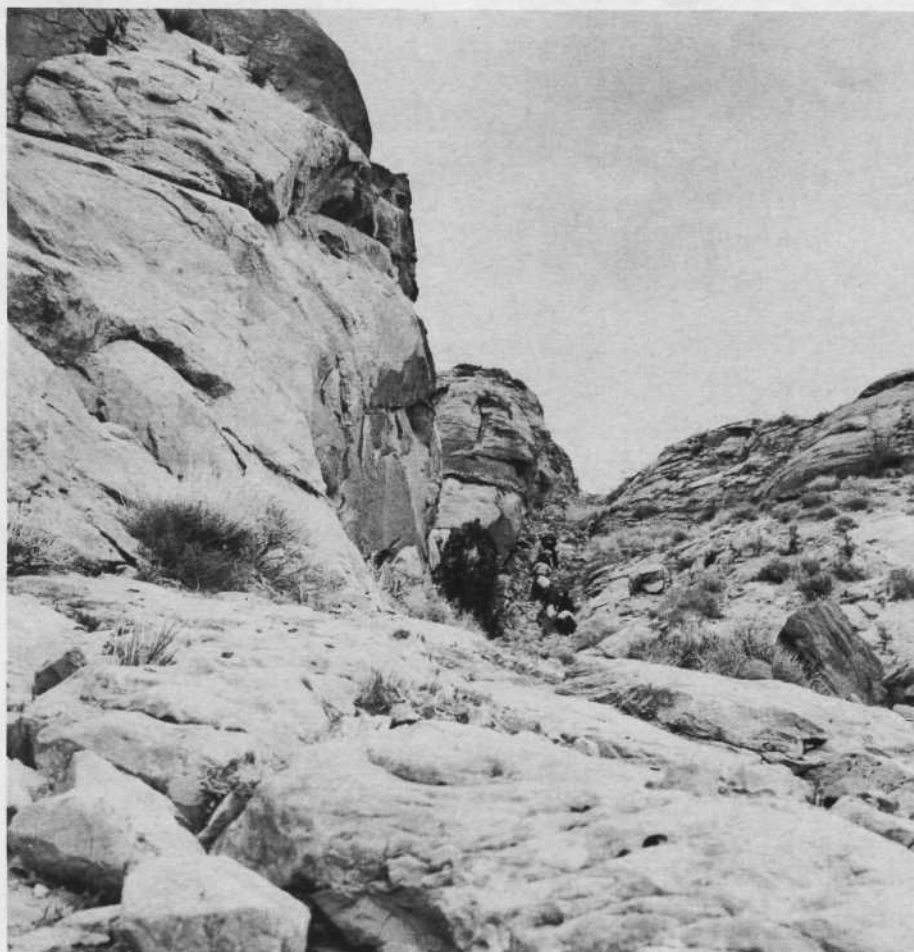
our eastward ride. A half-hour later a light plane flew over.

"Here they come!" shouted Elmer



CURTIS VIK STOPS FOR A REST ON GRAY MESA. IN LEFT BACKGROUND IS SAN JUAN RIVER.





THE POWER SCOOTERS FOLLOW THE WAGON ROAD UP LAST GAP TO TOP OF COTTONWOOD HILL

excitedly. The plane was about to fulfill an old tradition, for every time Elmer goes into the wilderness, a group of his friends in Sedona take to the air and attempt to spot him. We scattered on the flat and began waving and even shouting skyward.

The plane made a lazy circle above Hole-in-the-Rock and once more came up the trail, this time barely skimming the tree tops. They saw us and wagged their wings. On the next pass a streamer of toilet paper came float-

ing out of the sky. Inside the roll was a bottle of buckshot and a note: "Here's supper for tonight: dehydrated steak pills."

The pilot, having given us sufficient time to digest the practical joke from outer space, made another pass and dropped six T-bone steaks wrapped in a burlap sack. Much better!

We drove over a knoll upon which we saw wheel tracks overgrown with grass. I learned prior to making this trip that Kent Frost, that indomitable

outdoor guide from Monticello, had "stuck some jeeps down in Cottonwood Canyon," but I had had a hard time convincing Elmer, who knows something of this country but is not acquainted with Kent, that such a feat was possible. And now we had the tracks for proof. Considering the terrain these jeeps had to cross to get this close to the river, Kent's accomplishment is nothing short of amazing.

Near the head of Cottonwood Canyon we found a campsite complete with heavy iron grill, undoubtedly brought in by Kent. The grill would have been perfect for our steaks, but it was too early in the day to stop here, so we pushed on.

Bud was reluctant to leave the grill, but he was philosophical.

"We're back in civilization," he said, "and I don't think I like it too much."

We made camp on the side of Cottonwood Hill, on a sandstone shelf immediately under the pioneer scabble road spiraling skyward up the face of the red knoll.

Elmer studied the weather. "We're in for trouble, children," he sang out.

But, first there was the matter of the steaks. Each man cooked his own as best he could, and before the last bite was down the wind had picked up. We were virtually without protection, and in the few minutes of remaining daylight, we prepared for the night.

Bud and Kimball manhandled their Tote Gotes and packs up the rocky roadway in search of a cave. Elmer and Bill put their beds down on a hump on the slickrock and covered up with plastic. The water, they figured, would run off them. Curtis and I ran down a gully and up



ON TOP OF GRAY MESA. EIGHT MILES OF SMOOTH SAILING AHEAD.



**BILL BERRY LEADS THE WAY INTO THE SLICKROCK COUNTRY WHERE THE TRAIL LEAVES GRAY MESA**

the other side and put in under a narrow overhang. First we had to clear it of bones, droppings, spider webs and slabs of sandstone. There was possibly 50,000 tons of rock in the ledge suspended a foot above our heads, and someday it will fall in one spectacular crash—but our immediate problem was to keep warm and dry and not ponder problems of physics.

"THE EMIGRANTS had now arrived at the point beyond which most of the early explorers had decided that no wagon road could be built. Now they must get to work and build a road through the 'impassable' country. A distance of approximately five miles separated them from the top of Gray Mesa . . . and a road would have to be built almost every foot of the way, most of it to be hewn from the solid rock . . . At first appearance, one is struck with the notion that the pioneers came to this solid barrier and decided to build a road over it just to prove that it could be done . . . It required seven teams of horses or as many yoke of oxen to drag the heavy wagon up those steep slopes . . ."—DAVID E. MILLER

"We got the road made up the sand hill into some of the roughest country teams and wagons were ever driven over. The rocks were like great hay stacks. We made a road through between the hay stacks . . ."—SKETCH OF MY LIFE BY C. I. DECKER

". . . the road was steep and the chain broke and the wagon turned over, the tongue went up in the air and lit upside down in the road so we had to take it to pieces and pack it up on top so we could put it together. We had a hive of bees and had to wait till we could sack the bees before we could start packing the pieces of wagon and the load up the hill. That took a lot of work . . ."—LIFE HISTORY OF HENRY JOHN HOLYOAK

THE NIGHT'S RAIN had been light and we were struggling the Tote

Gotes up Cottonwood Hill before 8 o'clock. The going was relatively easy, and within the hour we were on top. Here we took our last long look westward at Hole-in-the-Rock, now about six airline miles distant.

A jar at the side of the road serves as a register, and it was filled with slips of paper placed here by folks who had been with Kent Frost and other parties that winched their jeeps this far and farther.

One note tickled me: "Stayed all night. Lost wheel off Joe's jeep; lost part of drive shaft on Cahoon's jeep. All's well!"

"YOU WANT US TO TELL YOU what kind of a country this is but I don't know how. It's the roughest country you or anybody else ever seen; it's nothing in the world but rocks and holes, hills and hollows. The mountains are just one solid rock as smooth as an apple."—ELIZABETH MORRIS DECKER'S LETTER TO HER PARENTS, WRITTEN FEB. 22, 1880

IT WAS DIFFICULT following the old trail in some of the broken country between the top of Cottonwood Hill and the mesa. We wandered about the slickrock, dodging the bigger potholes and skidding down slippery banks. The Tote Gotes enjoyed maximum traction on this rock surface highway, and they'd crawl over



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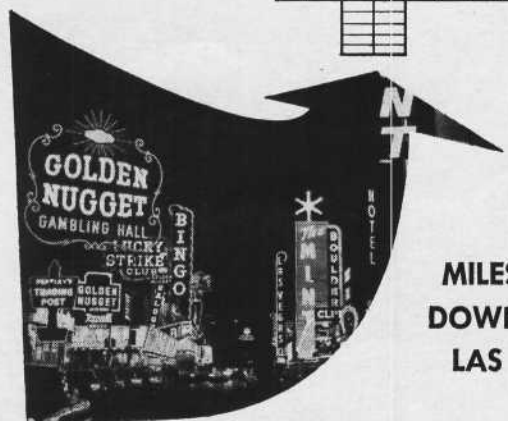
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THE CAVE IN THE SNOW STORM. NOTE WATERFALL COMING OVER LIP OF LEDGE AT LOWER LEFT.

any grade we pointed them toward—provided, of course, we could stay astride our machines as they climbed.

"The Mormons weren't trying to get out of this country," observed Bud. "They were hunting water-holes."

And so it seemed as we wandered about the sandstone jumble until suddenly and without forewarning, we drove up onto Gray Mesa and right into a graded boulevard—two cars wide and flat as a pancake. The road was built by oil explorers.

We whizzed along at full throttle (about 18 mph) on the sandy tableland for nearly eight miles. This huge mesa is covered with shadscale and little else, but the Mormons crossed it when it was mantled with a foot of snow. One of the pioneer women gave birth to a son here—third child born on the original expedition—in the midst of a blizzard.

"HE FOLLOWED THE mountain sheep until it reached the rim of the canyon where the sheep climbed over a shelf and rimmed around from shelf to shelf until it reached the bottom of the ledge. Hobbs followed the sheep for about two hours and the other men had begun to get worried about him. Finally they heard him call, 'Boys, I have found a road.'"—FROM THE MEMOIR OF JAMES MONROE REDD

BY 11 THAT MORNING we were off the mesa and back in the land of slickrock and red sand. The weather was threatening and a few drops of precipitation hit us when we were in the heart of this crazyland of rocks. The clouds were very light in color.

"We've got to find shelter and quick," said Elmer. "It's going to snow."

And snow it did—just moments after we crowded into a tiny cave big enough for the six of us to sit in. The only thing we could do was gather juniper limbs (fortunately plentiful) and make a roaring fire at the mouth of our emergency quarters.

Our cave was practically under the lip of a rock ledge that looked discomfortably like a dry waterfall. To add to the unhappy illusion was a rather deep pool of water immediately below the rim and facing our cave.

After 15 minutes of blinding snow we heard a distance rumble.

"That ain't thunder!" cried Bud jumping to his feet. "That's a waterfall coming our way."

He was right. We ran out into the snow and watched the water pour off the tops of the cliffs, collect in a wide stream and then race down the course feeding into our waterfall.

So now we had running water—but thankfully, the volume was not great enough to reach the cave entrance, so we leaped over the stream and piled back into the shelter.

"This thing could last three-four days," Elmer said, "but beings it started snowing right off the bat instead of raining, in this country that means a short storm. Probably be over in a couple of hours."

A little after 4 that afternoon the snow let up. Bill and Elmer jumped on their Tote Gotes and went out to scout the country. In a half-hour they returned with good news. They had found a big cave that six men could stretch out in. And so—in a considerably altered frame of mind—we moved camp.

"BEFORE LEAVING the camp . . . I had agreed upon a system of signals on any prominent ridge that I might cross to guide the company which way to come, my signals were three fires in a triangle."—THE GEORGE B. HOBBS NARRATIVE

AFTER SUPPER, BILL hiked to high ground and fired a red rocket into the sky. It had been pre-arranged with LaVon that we would mark our respective positions at 8 p.m. on this night by firing such rockets. We strained our eyes eastward into the blackness, but saw no answering flare. Bill could not hide his concern for LaVon and Lucile who had never before been to the pinpoint in the wilderness where our paths were supposed to cross—and

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who would have to find that pinpoint under the foulest of weather conditions.

"THERE IS SIMPLY NO WAY of describing the country or understanding the nature of the obstacles to be overcome without having made . . . a reconnaissance. Furthermore, it would be foolhardy indeed for anyone not well acquainted with that wild country to try to drive a jeep into the region. Without the help of experienced guides we would never have reached our destination, but would have become hopelessly lost in the maze of canyons, gulches, and buttes with which that country is so generously blessed."—DAVID E. MILLER

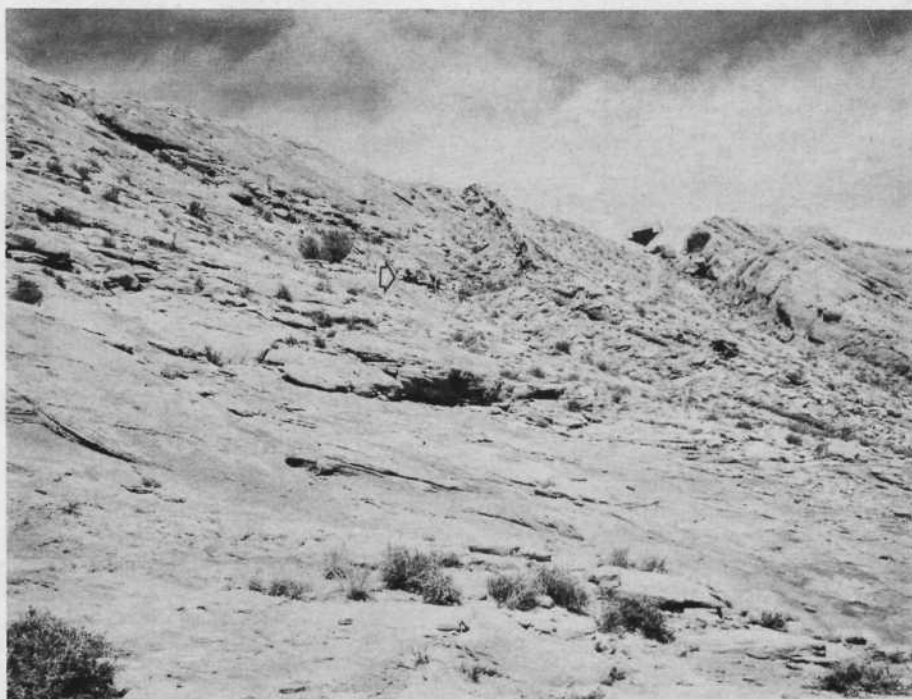
WE AWOKE AT 5 a.m. Elmer, who had slept in the open after deciding we had seen the last of the bad weather, was frozen out of his bed and came hopping and skipping to the cave to start the fire. This pleased the cave men no end.

It was a bright beautiful morning, and the surrounding peaks and plateaus were covered in white. The intensity of this land is startling.

Our course took us northward past Lake Canyon where giant cottonwoods and the chirping of birds make this a pleasant oasis. The beauty of the land and the blue sky overhead were infectious. I noticed that my companions would shout out snatches of songs ("It ain't going to rain no more!"), oaths and tidings of good cheer without provocation — just to hear their voices ring clear.

We made our rendezvous with LaVon and Lucile at noon. The storm had given them a bad time. Racing flash floods across half the state of Utah, they were forced to leave the Valiant at Hite, and to fabricate a new hitch out of practically nothing so they could pull the trailer behind the jeep.

LaVon had had only one fear: that a cowboy would shoot at their strange



SAN JUAN HILL—THE LAST GREAT CHALLENGE ON THE TRAIL. WHITE ARROW POINTS TO TOTE-GOTERS AT FOOT OF WAGON ROAD (WHITE SCAR) THAT ANGLES UP TO CREST (BLACK ARROW).

outfit—a pickup pulling a jeep and trailer in tandem and the whole covered with six-inches of red mud—mistaking it for a new species of giant centipede moving into the country.

LaVon was proud of his wife and the way she had brought the Valiant through the wash-outs in the gorge leading to Hite, until the car's motor was simply soaked to the point of not being able to sputter. I suspect Lucile returned to the housewife's routine with thanksgiving in her heart.

The Tote Gotes were loaded on the trailer in Castle Wash (named for an impressive Indian ruin at the side of the road) and we continued east and north down Clay Hill Pass and past Red House Spring to the cedar thickets near Utah Highway 95, where we made camp. Bill, Elmer and Kimball drove the 38 miles to Hite to pick up the Valiant, returning after midnight.

"WEDNESDAY, MARCH 10TH, 1880. Returned this evening from a 5 days trip with bros. Sevy and Bryson looking for a road across what we call the Cedar Ridge extending 30 miles each way and nearly everywhere covered with a dense growth of cedar and pinyon pine. We found gulches with perpendicular banks 1000 feet high running from the extreme north 30 miles into the San Juan to the south, but by going around the head of these we can make a passable road by following an old Indian trail . . . Monday, March 15th, 1880. Last night was the coldest night I ever experienced it was impossible to be comfortable in bed or anywhere else."—JOURNAL OF PLATTE DeALTON LYMAN.

I CAN TRUTHFULLY say that I never spent a colder night than the

one in the cedars. In the morning we found frost covering the ground and the sleeping bags, and hanging from the limbs overhead.

Bud was cold, too. "The next peo-



THE EASY RIDE DOWN COMB WASH

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## Desert

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— IN THE SEPTEMBER DESERT MAGAZINE —

ple whose trail I track down will be them that went off to Hawaii," he said.

The wilderness part of our trip was over. From Cedar Flats we headed south on the highway that parallels a considerable portion of the old trail in its upper reaches. At Mexican Hat we filled the gas tanks and had a "store-fried" hamburger. Then we drove the 17½ miles to Comb Wash where the pavement intercepts the wagon road.

"EXPEDITION MEMBERS found Comb Ridge an impassable barrier. The Comb is a ridge of solid sandstone extending southward from Elk Ridge beyond the San Juan and into Arizona . . . There is no natural break in this solid rock wall except the one cut by the San Juan River . . ."—DAVID E. MILLER

"Thursday, April 1, 1880. Drove 10 miles down the wash through very bad sand to the San Juan River where the company is camped and at work on the road. We cannot follow up the river, so we have to do some work to get up over the bench." — JOURNAL OF PLATTE DeALTON LYMAN

"The night we got down into Comb Wash . . . our meat and everything else had given out on us. My dear wife and my two little boys had to eat dry bread for their supper. There is where I thought my heart would break . . . yet none of them said a word; even those two little boys ate their dry bread and never

said a word about it. I tell you that cut me to the quick. I never slept much that night; I was trying to think what could I do to get them something to eat."—SKETCH OF MY LIFE BY C. I. DECKER

WE UNLOADED THE Tote Gotes and started south down Comb Wash. LaVon and Lucile drove the four-wheel vehicles into Bluff. Following the flat sandy wash to the San Juan was pleasant riding, but the road that twists up the back side of the ridge is something else. This was the last great pull: San Juan Hill.

"ASIDE FROM THE Hole-in-the-Rock itself, this was the steepest crossing on the journey. Here again seven span of horses were used, so that when some of the horses were on their knees, fighting to get a foothold, the still-erect horses could plunge upward against the sharp grade. On the worst slopes the men were forced to beat their jaded animals into giving all they had . . . By the time most of the outfits were across, the worst stretches could easily be identified by the dried blood and matted hair from the forelegs of the struggling teams. My father (L. H. Redd, Jr.) was a strong man, and reluctant to display emotion; but whenever in later years the full pathos of San Juan Hill was recalled . . . the memory of such bitter struggles was too much for him and he wept."—CHARLES REDD'S "SHORT CUT TO SAN JUAN"

THE FIRST TIME we scanned the side of the hill for the wagon road, we passed it up because the one continuous scar we did see seemed much too steep to have once served as a road. It looked more like an outcrop of granite angling across the face of the hill. But, there was no other hint of a possible trail, so we drove up the slickrock to where the scar began. Sure enough, here was another road pecked from the bare stone.

"FOR SO LONG they had walked and slept and eaten and lived on sloping uneven ground

that the thought of level bottom-land was extremely sweet."—CHARLES REDD'S "SHORT CUT TO SAN JUAN."

" . . . the following day (April 6, 1880) we arrived at the point on the San Juan where Bluff City now stands. Much disappointment was experienced by members of the company . . . on their arrival for they had expected to find a large open valley, instead they found a narrow canyon with small patches of land on each side of the river."—THE GEORGE B. HOBBS NARRATIVE

CURTIS, ONLY ONE in our party who had never before been to Bluff, expressed amazement that this tiny flat on the river was the pioneers' Eldorado.

"You mean to say they spent six months slaving over that wagon road to get to this?" he exclaimed.

"Most of them didn't stay long," said Bill. "But they got here."

We drove to a rock formation known as Navajo Twins where there is a plaque commemorating the Hole-in-the-Rock expedition.

Quite a few of the townspeople had been following our adventures in Salt Lake City newspaper stories, and they came over to participate in the trail's-end ceremonies.

"You boys hear that the Russians put a man into space?" one of the local citizens asked.

My reaction was: So what? If America retains a fraction of the pioneering spirit that builds roads through the wilderness, we have nothing to fear of Russia or things Russian. ///



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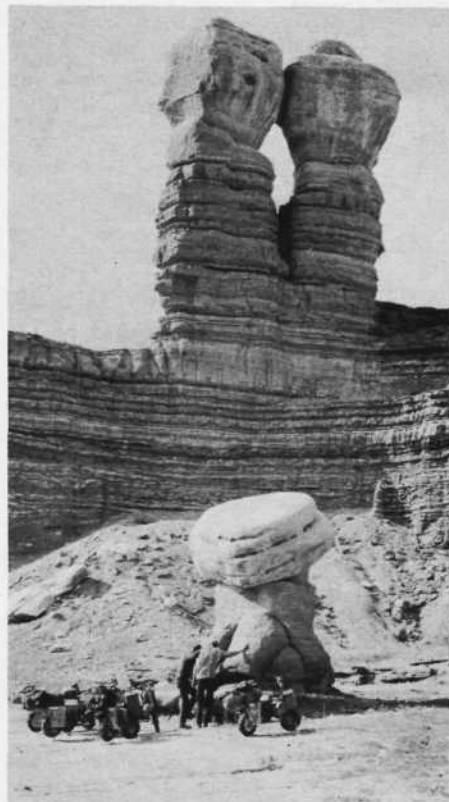
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TRAIL'S END





By RANDALL HENDERSON

**T**HIS IS MID-SUMMER on the desert. Already, on the low desert, we have had temperatures as high as 120 degrees. But there have been few heat prostrations because the old-timers have learned how to live with high temperatures — and the newcomers are learning.



Air-conditioning equipment is becoming more convenient and efficient each year, and today either evaporative or refrigerative coolers are in every home and shop. I have both in my desert home. When the air is dry I prefer the evaporative system. But when humid days come the refrigeration system gives greater comfort.

Scientific studies have revealed some conclusions regarding bodily reaction to high temperatures which it is well for all desert dwellers to know. One of these has to do with clothing. Indoors it may give added comfort to strip down to a minimum of wearing apparel. But bare skin exposure to the sun increases the rate of dehydration and hence discomfort. The desert is the wrong place to come for a sun tan in the summertime. In the sun it is better to be fully clothed—and the whiter the fabric the better.

An even more important rule governs the intake of water. Contrary to what most persons assume, thirst is not an adequate gauge of the amount of water required to keep the human system functioning best. The advice is to drink lots of water, whether thirsty or not, both indoors and out. Just motoring along the highway on a hot summer day the body may lose as much as a quart of water an hour by perspiration. The symptoms of dehydration range all the way from drowsiness to nausea.

On my summer driving trips I keep a thermos jug or a canteen on the front seat where I can take a drink every 15 minutes. It is better to take moderate swigs from the canteen at frequent intervals than to gulp large quantities at longer periods.

I did not originate these rules. I did not even know about them until World War II when the Defense Department sent a scientific team from the University of Rochester to carry on field research with Patton's army, then engaged in training on the Southern California desert in preparation for possible duty in North Africa. They wanted to find out what clothing, food, water and shelter would make American soldiers most effective in desert warfare. Later the report containing many pages of exact findings on the subject of human survival on the desert was published in book form, the *Physiology of Man on the Desert*.

\* \* \*

For eight years California and Arizona have been feuding over the ownership of a little tract of land—about four thousand acres—along the Colorado River

north of Yuma. The boundary between Arizona and California is the Colorado, the center of the stream. But it has never been a very stable state line.

Early in the century, before Hoover Dam was built, the flood discharge which came downstream in June and July following the melting of snow in the Rocky Mountain watershed, would overflow the banks and erode new channels, abandoning the old ones. In 1936 when the completion of the dam put an end to these flood meanderings, the river channel became stabilized. But a sizable parcel of land which had previously been in Arizona was now on the California side of the river.

This was not important in a period when few people occupied the lands along the river. But with the stream stabilized, and the exploding population of the USA seeking new homesites, the bottomland along the river became valuable for farming and for fishing and boating concessions. Large numbers of people moved in, many of them squatters on land which had been withdrawn from public entry. Today the "island" between the original river channel and its present course is a no man's land where neither law enforcement officers nor tax collectors can claim sovereign authority.

It was to settle this problem that a joint commission was named eight years ago. The commission recently proposed that the dispute be resolved by division of the controversial "island" between Arizona and California. But the recommendation has to be approved by the legislatures of both states, and already it appears to be facing a veto in Sacramento.

Those of us who have a bi-partisan view of this issue are very sorry it has been made a political controversy. The disputed territory is American soil and it seems a rather petty thing to quibble over an imaginary line established only for administrative purposes. I have lived and voted in both states and have found the soil just as fertile and humans as well fed on one side of the line as the other.

\* \* \*

One of the most outspoken advocates of the preservation of wilderness areas in the United States — areas which will be closed both to commercial exploitation and erosive recreation—is William O. Douglas, Associate Justice of the Supreme Court. Speaking at the 7th Biennial Wilderness Conference in San Francisco in April, Justice Douglas said:

"Civilized man needs more than civilization to keep well. The endless wonders of nature are needed for physical, mental and spiritual health and well-being. . . . Science should never become our master, but rather, our public servant. Man is not merely a cog in a machine as the Communists think, nor a statistic as science thinks, nor a consumer as the advertising man thinks. Man is a spiritual being. His greatest mission is to preserve, not to destroy. We shouldn't just occupy the earth, we should be in tune with it. We live by spiritual values. We should turn more to the natural environment, the wilderness, for growth."

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