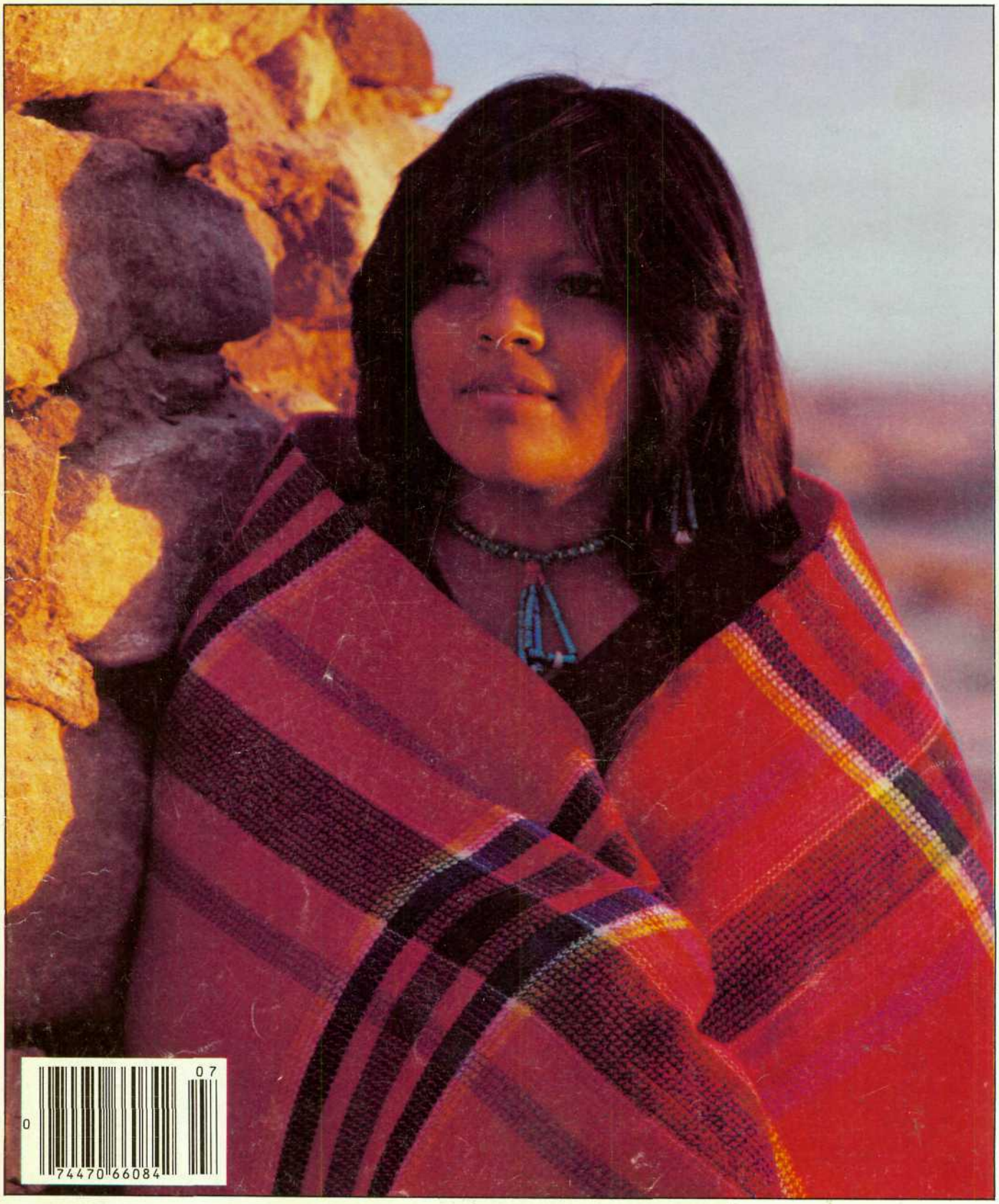
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Cholla and Mexican poppies, Picacho Peak, Ariz. Photograph by Jerry Sieve

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VOLUME 44 NUMBER 6 July, 1981

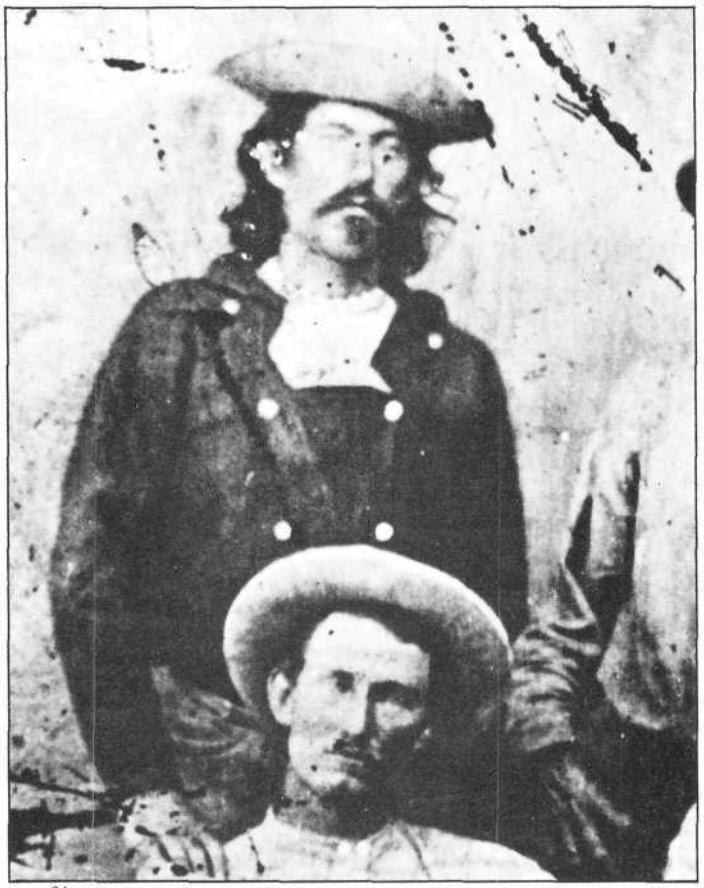
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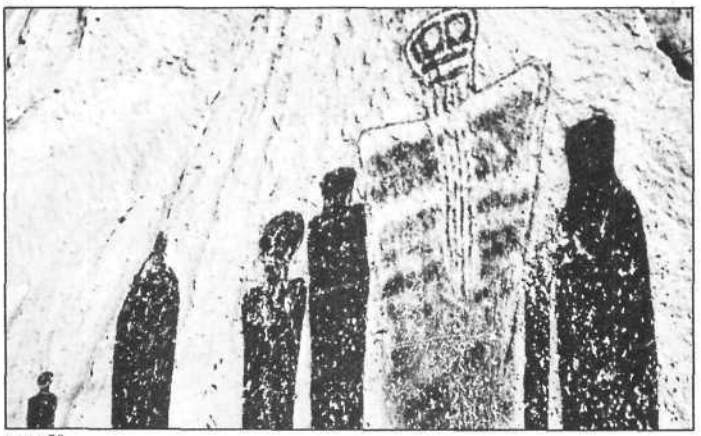
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Our Cover:
Fifteen-year old Carol Dawahoya attends Sherman Indian High School in Riverside, California, a long way from her home in Shongopovi Village on Second Mesa, Arizona where she was photographed by Jerry D. Jacka.

PUBLISHER'S NOTEBOOK

ON ADVERTISING

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Ed Seykota

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EDITORIAL

A Vision of Freedom

IT IS the year 1880. Imagine yourself an Indian for the minutes it takes to read this.

Dee Brown's and your story of the Indian Wars, *Bury My Heart at Wounded Knee,** has not yet been written. Neither, of course, has the interpretation of Hopi tradition by Tom Kavanagh and Mike Kabotie, which appears on page 54 of this magazine.

You already know, though, about the authentic transcripts of what your chiefs had to say at innumerable parleys between them and your white conquerors, from which Brown put together his compelling rewrite of western history.

You know, as Brown and his readers found out, that the Indian did not fire the first arrow, take the first scalp or torture the first prisoner. You know that the white man negotiates treaties with no intent of keeping them, that he appropriates your land without regard to your wishes and that he has begun transporting survivors of the wars that resulted to far-off "reservations" that are too barren to support human life.

Much later, perhaps 100 or so years from where you are, your descendents will see justice come full circle, still ignoring your dreams and theirs. It is 1981 now, and the whites, perhaps in atonement for inherited wrongs, persist in their interference, this time with good intentions of saving your culture, that little which wasn't buried with your heart.

If you are a Hopi, about whom Kavanagh and Kabotie write, you are now a symbol of a free and simple way of life unattainable in white suburbia. Your exquisite pottery is displayed in museums, tourists motor across states to watch your ceremonies and on television of late, you even find yourself winning a few skirmishes.

You have been enshrined as a living national monument. You have a role you must play. You must sit in front of your pueblo and fire pots or carve Kachinas, which are soon duplicated by the thousands in the white man's factories.

Some of you are content with this. More, though, wish to be assimilated, at least in part, that part which affords the tractor, the pick-up, the double-wide mobile, the college education for the children. But, you know it won't come from pots and Kachinas, or from government handouts.

So you resist the environmentalists who wish to close Peabody Coal Co.'s strip mine across the mesa from Kayenta. You know about coal. Your ancestors mined it 1,000 years ago, long before the Europeans, and used it to heat their pueblos and bake their *piki*.

You know that Peabody refills depleted pits and seeds the fill with native grasses. You only have to go see an older mine of theirs on Navaho land; you can't tell where it was. But some of your brothers still side with the white man in wishing to remain a living museum.

Their doubts are real, for the idea of bringing industry to the reservation has not been entirely successful. A Hopi-financed clothing factory on tribal lands near Winslow went bankrupt. A small electronics plant near Hoencopi, however, is thriving. It, along with the mine, is a start.

It is better than moving to a far-off city. Assimilation needn't mean loneliness in a strange land of steel and concrete, where your culture might wither and die with you. That is for the few who have become lawyers and doctors.

You only want to be an American, proud of your Hopi extraction. You want roots, yes, but not those of a tree which can't of itself move an inch from where it was born. You want freedom, with full realization that it is not simple. It costs money which must be earned—and you would, if they'd just leave you alone.

The white man is strange, you think. He is still your captor, only now, he envies your state.

Don Wade Donald

*Holt, Rinehart & Winston, New York, N.Y., 1971

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LETTERS

Don't Pick Up the Tarantulas

Articles such as the one encouraging the capture of tarantulas as pets [***Desert,*** December 1980] appear very contrary to responsible desert management. Federal land managers may permit certain activities, but state parks are strictly regulated. The rangers would appreciate your efforts to help persons enjoy the desert rather than take it home with them.

K. A. Smith
Borrego Springs, Calif.

The author's (and our) intent was to protect all tarantulas by stressing that the male is essentially harmless, its rare sting causing no more discomfort than that of a bee. The male requires 10 years to reach maturity, and dies within eight months of the act. The species is less endangered by the loss of the few which are sold as pets than by persons who encounter the tarantula in the wild, think it is dangerous, and kill it on sight. They are most commonly captured by dealers immediately after mating, in October and November, when concentrations of them are found wandering around in a dazed condition. Therefore, a pet tarantula at $27 can be a short-lived investment. The mating migrations take place on all kinds of desert land, public and private, and the species is plentiful enough not to protected by law.

The Cafeteria Lady

I'd like to know more about Dorothy Brown, who seems to *always* be in the cafeteria at the Furnace Creek Ranch in Death Valley. I got up at 5 a.m. and she was there, and when I came back at 10 p.m., she was still there. She is a quiet woman, I know, but she must have a story to tell.

Dot Kangas
Hubbardstown, Mass.

Dorothy, who is in charge of the cafeteria, could tell many stories about herself, but she won't because she's too modest. We had to find out from her boss, for example, how she magically turned her cafeteria into emergency housing that early evening, last March 30, when the ranch lost a block of 41 guest rooms to fire. There were no injuries, but Dorothy calmed the mostly elderly people routed out by the fire, and strictly enjoined the 70-plus-year-old men from "bed-hopping." Then she kissed each one of them good night.

Dorothy, originally from Chicago, was visiting Tecopa Hot Springs with her husband in 1973, liked Death Valley, and came down to the ranch and applied for a job. Her husband found work in nearby mines, and they've been there ever since. The college kids employed seasonally at the resort all remember Dorothy as they would their own mother; she seems gruff, but there's a fun-loving heart of gold inside.

Bookbinders' Lament

Have you no mercy for bookbinders? First you change format in mid-volume, then you leave us almost no trim margin. Sometimes there is as little as 1/8 inch at the bottom and 3/16 at the outside edge. If imposition, folding and original trimming were completely accurate the problem could be managed, but that is seldom the case. So, some pages end up with practically no margins whatever when trimmed for binding into book form, and the result looks terrible. Don't just stand there, do something!

J. R. McClurkin
Santa Monica, Calif.

A majority of magazines have gradually reduced their trim size in recent years, a practice dictated in part by constantly increasing paper and shipping costs. Unfortunately, too, the image or live area has not shrunk accordingly, because advertising agencies are slow to change the standardized dimensions of their ads. Recent issues of *Desert* Magazine prior to March, 1981, represent conventional industry sizing, which is admittedly tough on bookbinders. Our current issues are 1/4-inch wider overall but we used up this gain in the image area to get more separation between columns, for easier reading and improved graphics. We are working to find a way to satisfy all the sometimes conflicting demands.

Frustrated Hoosier

I feel I must tell you what your magazine means to me—a frustrated Hoosier who loves the southwest. Through the years, my husband and I made many vacation trips to the west coast, always planning ahead to make at least one side trip to someplace we had read about in ***Desert*** Magazine. Our dream was to retire and really take off, perhaps even move to the sun belt.

However, I lost my dear husband five years ago and just retired myself last spring. How can an old lady of 65 even think of taking off in a four-wheel drive and head for the desert alone?

Mary A. Crago
Indianapolis, Ind.

Don't even think about it—just do it.

McWhorter Again



Publication of my letter in the January [1981] ***Desert*** assures that issue will become a collectors' item. And, Newell Charde's letter about cats gobbling lizards emptied my tear ducts. Damn cats! I enclose an unusual snap of a collared lizard. It looks like a studio study, but I actually took it in the wild where there are no cats—in the Seven-Troughs Mountains north of Lovelock, Nevada. That is where diatomaceous earth is mined, an unusual habitat for the collared or any other lizard.

Frank P. McWhorter
Carmel, Calif.

Jerome, Arizona Revisited

Having been around Jerome since April of 1929, I have witnessed its closing, the dismantling of stores and homes, and I recall the passing of many of its pioneers. In my first month there, a friend and I hiked from Clarkdale up the face of Mingus Mountain and back in time for dinner at 5:30. Although Mingus has bear, we never thought of that then.

I don't think Jerome [***Desert,*** March 1981] ever had a trolley. The Little Daisy Hotel also housed bachelor office workers from the mine and its copper roof, I've been told, was removed during World War II for reuse in ammunition. In the large photo of Jerome [pages 18-19] at the middle right is a building with three stories of large windows. This is the present Verde Valley Artists' Gallery. Above it and to the right is the old Catholic church, where thousands of dollars have been found. The money was hidden by a senile priest, Fr. Atucha, whom I knew in his prime. There will soon be a memorial in the church to the old priest, who gave more than 50 years of service to Jerome.

Catherine M. Manley
Prescott, Ariz.

Missing Ghost

Your May, 1981 issue, in the *Clarion* piece headed *Ghost Town Tour of Oregon,* recommends visiting Wendling, where "the wooden roads and deserted camp houses of the old logging town . . . still remain." In fact, virtually nothing is left of Wendling.

The town was built by the Booth-Kelly Lumber Co. and existed from 1895 until 1946. After all the old-growth timber was cut, Booth-Kelly let residents stay on for a while, then moved everyone out and demolished the town. Only a few traces now remain, though there are some relatively modern homes nearby. The concrete shell of the Booth-Kelly vault is the only remaining structure. There once was a large mill, a business district and school, and nearly 100 homes.

Daniel W. Hays
Eugene, Ore.

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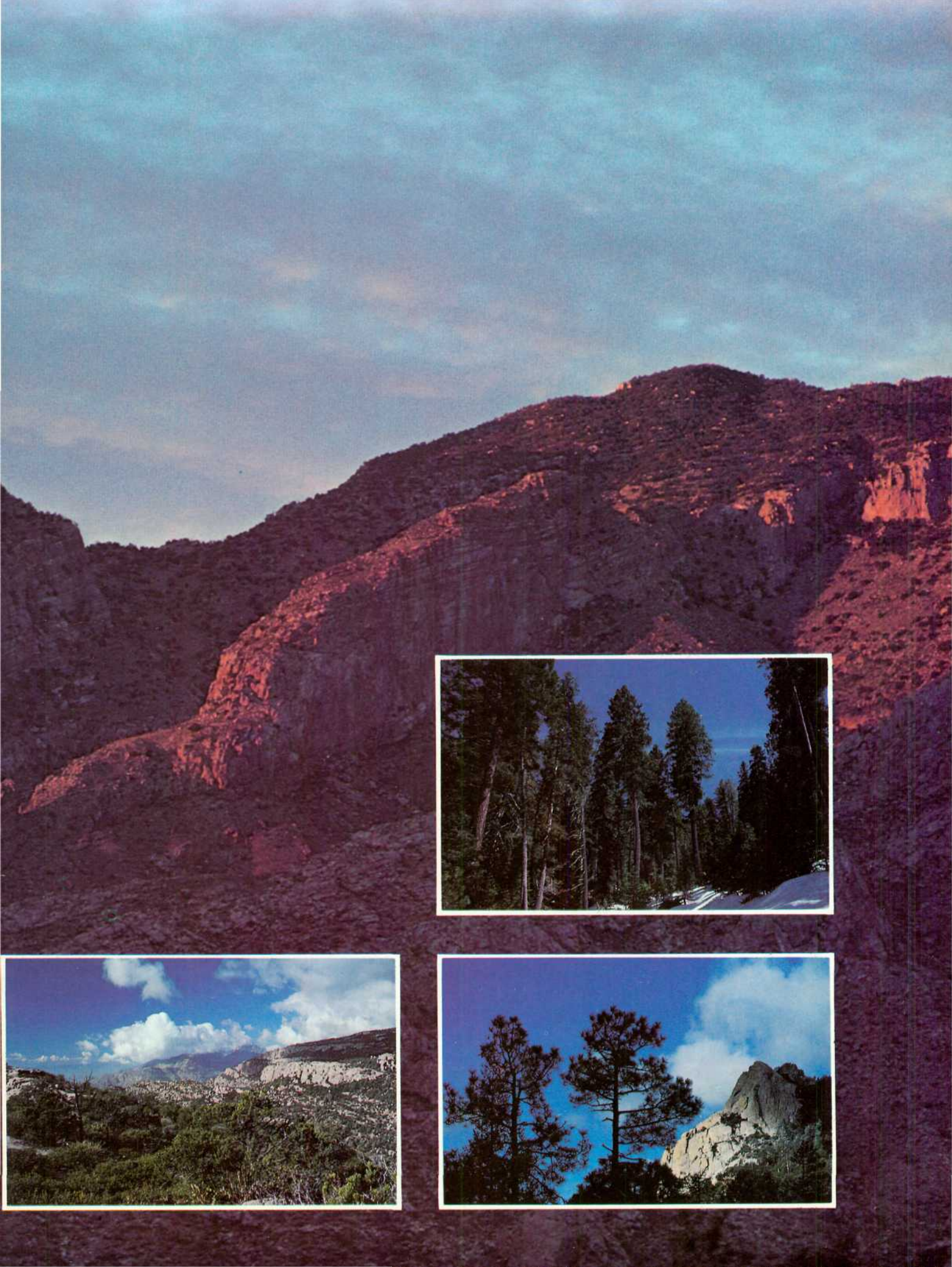
THE SANTA CATALINA MOUNTAINS: A DESERT SKY-ISLAND

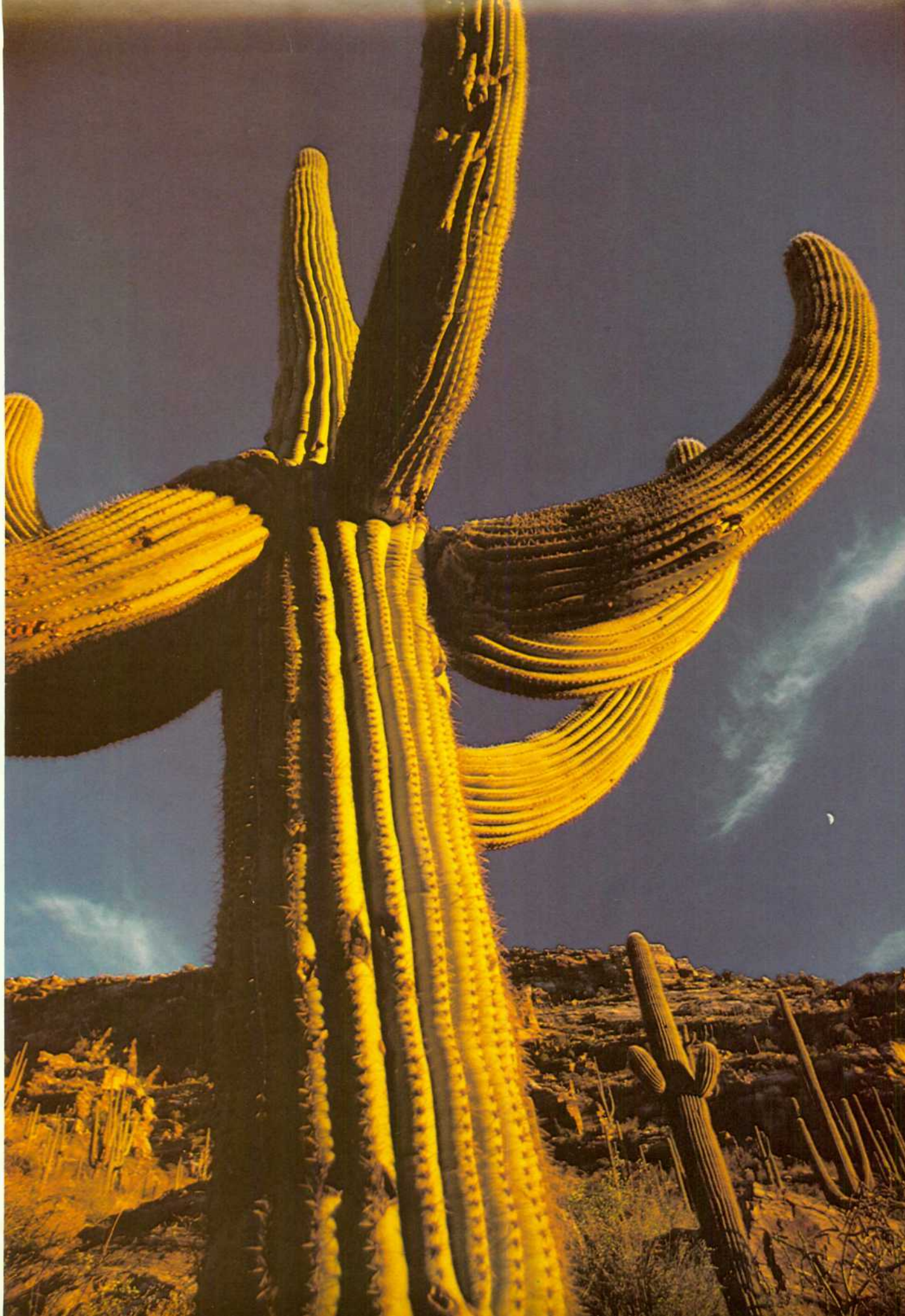
Article and Photographs by Andrew Steuer III





Evening light on the front range of the Santa Catalinas (background photo) provides the setting for the classic life zones beyond. These are (inserts, counter-clockwise, left to right) Sabino Creek, Lower Sonoran; Peppersause Canyon, Upper Sonoran; Peck Basin overlook, Transition; and snowbound white and Douglas fir, Canadian.





Giant saguaro typically dominate the Lower Sonoran desert scrub of Lower Bear Canyon.

AN ALMOST academically perfect aspect of the southern Arizona landscape is the assemblage of "sky-islands," the isolated mountain ranges which harbor coniferous forests high above the grasslands and deserts below. South of the Mogollon Rim, such ranges as the Pinalenos, Pinals, Galiuros, Baboquivaris and Chiricahuas exhibit a rugged topography unlike that of much of the plateau-dominated terrain of northern Arizona. The Santa Catalina Mountains are, in many respects, a typical sky-island range, while in other ways they display the island-like quality of individuality.

The Santa Catalinas occupy a 200 square mile piece of very convoluted real estate whose steep front range leans hard on the city of Tucson's northern edge. On the south-facing slopes above the city, ideal conditions for the growth of Sonoran desert vegetation are found at elevations below 4,000 feet. Facing to the south, these slopes enjoy optimum exposure to the sun, which reduces the danger of damage from freezing temperatures in the winter. Many of the plants here have water-storing tissues, and most of them are derived from tropical ancestors; as a result, this plant community is especially sensitive to the cold. Also favoring the development of the desert foothill plant community is the water supplied by the runoff of infrequent rains. A greater diversity of plant life is thus attained in the slope habitat when compared to that of the thirsty flats below.

Streams flowing from the mountains deposit debris and form alluvial fans which spread outward from the mouths of the canyons. The long, gradual slopes resulting from the overlap of side-by-side alluvial deposits are called *bajadas*. The gentler of these slopes furnish additional areas for the foothill plant community. The coarse-soiled *bajadas* have fine stands of saguaro which form so-called cactus forests on these favorable outwash plains. This giant cactus also grows on the more rugged terrain above the *bajadas,* as well as on the nearly vertical walls of the south-facing canyons.

The Sonoran desert community at these lower elevations is the first of the life zones encountered as one ascends the Santa Catalinas. The life zone principle is perhaps better illustrated in southern Arizona than anywhere else, the Santa Catalinas in particular are often used as the textbook example of the concept.

A sky-island is like an ecological Noah's Ark, a safe haven, in a desert instead of a deluge.

The major factors which govern the marked variation among the life zones are rainfall and temperature. Rainfall increases with the elevation while temperature decreases; thus, as one factor is at a maximum, the other is at a minimum. Annual rainfall in the Lower Sonoran Zone is a scant 11 inches or so, yet atop nearby Mt. Lemmon the total is around 25 or 30 inches. In this part of Arizona, the temperature drops about four degrees for each 1,000 feet of elevation. So, while the Lower Sonoran Zone swelters in 100 degree temperatures at 2,750 feet, it can be a comfortable 75 degrees among the Douglas firs at 9,000 feet in the Canadian Zone.

The first life zone, the Lower Sonoran, consists of the aforementioned Sonoran desert community, dominated by the saguaro-palo verde association. The Sonoran desert possesses the most diverse flora of all the southwestern deserts, characterized by the occurrence of small desert trees and an abundance of cacti. Representatives of all the major groups of cactus in the southwest are found in the Sonoran desert: columnars, barrels, chollas, prickly-pears, pincushions and hedgehogs. Because of the stands of giant saguaro and the presence of the desert trees, this portion of the Sonoran desert is often referred to as the arboreal desert.

The upper limit of elevation to which the Lower Sonoran, or any other life zone, extends is dependent upon several factors, but the major determinant is the directional orientation of the slope. On sunny south-facing slopes, each life zone reaches a higher elevation than it does on the cooler north-facing slopes. For this reason, the elevations of life zones are usually expressed as being somewhere between two extremes, rather than as a single definite elevation.

The Upper Sonoran Zone begins at about 3,500 or 4,000 feet as grassland gradually takes over. There are three subdivisions to the Upper Sonoran Zone: grassland transition, open oak woodland, and oak-pine woodland. On the north side of the Santa Catalinas, near the town of Oracle, the grassland transition is the lowest zone present because of the north-facing aspect of the slopes and the higher elevation of the land at the base of the mountains. The elevation of Oracle is 4,514 feet, while that of Tucson on the south side of the Catalinas is only 2,389 feet.

The grassland transition is the lowest of the Upper Sonoran environments. Oaks begin to appear slightly higher as the open oak woodland is reached. Toward the highest portion of the Upper Sonoran Zone, pines begin to appear among the oaks, creating the oak-pine woodland.

The ponderosa pine forest, starting at 6,000 or 7,000 feet, comprises the Transition Zone. While the trees of the

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Upper Sonoran oak and oak-pine woodlands are rather short, the ponderosa pines of the Transition Zone grow tall in open stands.

The loftiest of the life zones in the Catalinas is the Canadian Zone. This forest, dominated by Douglas fir and white fir, is restricted to the highest elevations and is best developed on north-facing slopes. It begins around 7,500 feet and reaches the summit of Mt. Lemmon, the highest point in the Santa Catalinas, at 9,157 feet.

THE CANYONS that cut deeply into the Santa Catalinas can sometimes throw the usually ordered life zones out of whack. Cool air flows down the canyons in much the same way as water, creating some locally inverted life zone situations. A good example of this is found in the upper reaches of Bear Canyon. There, a Transition Zone forest of ponderosa pines on the cool floor of the canyon lies far below an Upper Sonoran oak-pine community which basks on the warm sunny cliffs. Another environmental feature of the canyons is the so-called riparian woodland. This cottonwood and willow dominated woodland is confined to the edges of streams in the lower reaches of the better-watered canyons. In Sabino Canyon, where the creek flows most of the year, is a well-developed riparian woodland which hugs the watercourse, contrasting sharply with the arid saguaro-covered canyon walls on either side.

Everywhere in these mountains are the canyons, radiating out from around the central high places or cutting a side-by-side course like ribs along the spine of a great ridge. Each is different from the next; each its own place, its own world. Finger Rock Canyon begins as a narrow corridor, cutting into the Catalina's front range toward Finger Rock itself, high above. It becomes even more narrow until it gradually seems to squeeze itself out of existence after four and a half miles, just below the summit of Mt. Kimball.

The bottom of Bear Canyon is strewn with immense boulders, many as big as a house. Slightly more than two miles up canyon, Bear Creek makes a right-angle turn to the left, ascends some formidable rock terraces, then makes a right-angle turn to the right to continue in its original direction. As Bear Creek descends this steep stone staircase between the two bends, it becomes Seven Falls. The cool, clear water, cascading down the smooth rock chutes into the deep stone basins beneath each fall, creates a scene as beautiful as it is incongruous in the otherwise parched, cactus-studded landscape.

Just as Finger Rock and Bear differ from each other, Sabino Canyon differs from both. Sabino Canyon is comparatively more spacious, with an aspect of grandeur about it. The towering cliffs and the turret-like hulk of Thimble Peak looming above are imposing and truly spectacular. Similarly, the many other canyons throughout the Catalinas display their own unique characteristics, and although they may share some general traits, if you've seen one, you haven't seen them all.

The Santa Catalina Mountains comprise but one of the dozen units of Coronado National Forest, which includes many other sky-island ranges in southeastern Arizona. Being part of the National Forest system, "land of many uses," and being so convenient to nearby Tucson, the Catalinas are used by many people for recreation. For this reason, the Catalinas have been made more readily accessible than most of the other mountain ranges in the area. Just inside the national forest boundary is Sabino Canyon Recreation Area, which is heavily used by the public for picnics, horseback riding and other outdoor activities, but what really opens up the Catalinas to the general public is the Mt. Lemmon Highway, a two-lane paved road going all the way to the top of Mt. Lemmon.

Each canyon is different from the next; each is its own place, its own world.

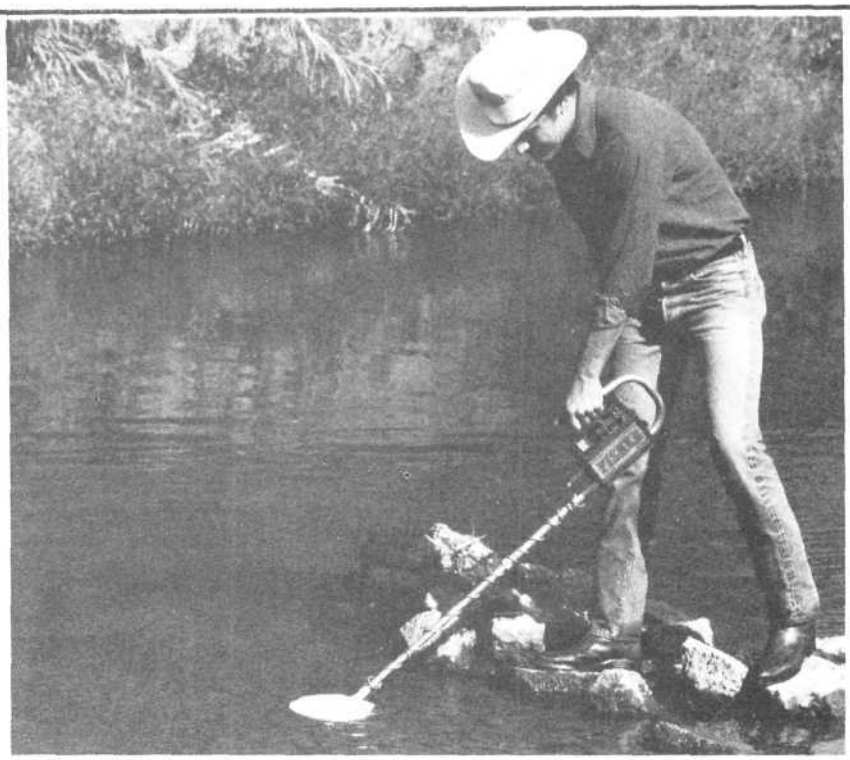
The Mt. Lemmon Highway zig-zags for about 30 miles from the desert floor to the wooded interior of the mountains. If viewed from directly overhead, the Catalinas would appear roughly triangular in outline, with Mt. Lemmon near the center. The highway, therefore, penetrates to the heart of these mountains. Here and there along the highway are picnic areas and campgrounds, and near the top of Mt. Lemmon there is a winter sports center, the southernmost skiing area in the United States. Also, there are unpaved road and jeep trails

branching off the main highway; one of these roads winds down the northern ridges for 28 miles to Oracle.

Obviously, the presence of the highway and recreation areas, along with the people and vehicles they attract, threatens the wilderness integrity of the Catalinas to some extent. Still, most of the range remains wild and remote. In the incredibly rugged Pusch Ridge area at the western end of the Catalinas, there is even a population of bighorn sheep, a remarkable presence considering they are practically on the doorstep of a metropolitan area with half a million people.

Pusch Ridge, along with the bulk of the Catalina backcountry, is accessible only by foot. Trails lead all the way through the mountains, but hiking is made difficult by the rugged terrain and, more often than not, the lack of water. Many hiking routes climb above the drainage-ways, putting the water supply out of the hiker's reach. The floors of most of the canyons are bone-dry anyway, except when they are under a raging torrent following a storm. What reliable sources of water there may be are few and widely separated, so water must be packed in by the hiker. So, even with their relative accessibility, the greater part of the Catalinas remain aloof and unyielding beyond the hot canyon walls and the far-off ridges. Hopefully, as southern Arizona in general and Tucson in particular continue their burgeoning growth, the Santa Catalinas will remain largely intact by virtue of their National Forest status. The swelling Tucson population will surely result in more people using the mountains for recreation, but the leap-frog housing construction in the Catalina foothills stops dead at the National Forest boundary.

The radical difference between the hot desert lowlands and the cool forests above makes these ranges unique, which is amazing, considering how close together these extremes are. Thus, the short trip up the Mt. Lemmon Highway is very much like driving from Mexico to Canada, in terms of life zones. Such a collection of different environmental conditions, occupying an isolated mountain range poking up from an arid sea, is like an ecological Noah's Ark, a safe haven in a desert instead of a deluge. There, above a thirsty ocean, supremely still and brooding beyond the endless saguaro legions, replete with hidden canyons and evergreen forests, the Santa Catalinas remain massive and indomitable.



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A Tale the U.S. Army Would Rather Forget

SYLVESTER MOWRY'S SILVER

by Joseph F. Kelly

Photographs by the Author

A LITTLE KNOWN but significant happening in the history of the southwest occurred during the Civil War. An ex-Army officer, born in Rhode Island and a graduate of West Point, was charged with treason for aiding the confederacy. He was arrested, tried and convicted, then sentenced to the Yuma Territorial Prison (*Desert*, February 1981). He suffered the loss of a million-dollar mine. The charges were unfounded, the result of the personal grudge of a fellow Army officer. The victim was ruined and died an early death, but his persecutor enjoyed continued prosperity. The story of Mowry's Silver Mine is unusual, and you can relive it yourself, for the location is now an extensive, easily visited ghost town.

Captain Sylvester Mowry was introduced to Arizona when he was ordered to Fort Yuma in 1855. At this time, the whole of the American southwest was included in the New Mexico Territory. It was unexplored and unmapped, known to people in the east as a land of fierce desert heat and hostile Indians. After the Gadsden Purchase, the section we now know as southern Arizona became a part of the United States, and rumors spread of rich mining locations open for exploitation. The post commander at Fort Yuma resigned his commission to form a mining company, his name, Heintzelman, being given to the silver mine at Cerro Colorado, south of Tucson. Then Mowry became interested. An Army post, Fort Buchanan, was established just above the border in southern Arizona to protect the new settlers and miners in the recently acquired land, and Mowry arranged to be reassigned to it.

One hot, still summer day, a Mexican sheepherder came to Fort Buchanan with exciting news. He said that while grazing his sheep, he had rediscovered a mining site, one seemingly worked in the past by either Spaniards or Mexicans who had abandoned it because of Apache Indian raids. An officer at the fort purchased information on the location from the sheepherder for either $10 or for an old pony, the story having two versions.

A group of officers formed a mining company and tried to work the claim. When the absentee ownership did not work, the officers arranged for the fort's suttler to operate the mine. Then, when the second effort also failed to produce the expected bonanza, the group sold out to Capt. Mowry, who paid them $22,000 for their rights, and he in turn resigned his commission and entered the mining business.

The mine Mowry bought needed a lot of work and expensive improvements. Mowry raised the needed capital and used his training as an engineer to improve the workings. The mineral vein was a mixture of silver and lead. The lead was ignored as being of too low a value to work, but the silver content was very high, some of it bringing $350 a ton in a period of low prices. Mowry hired up to 300 men at a time to work his mine, of which about 50 were used as guards to repel Indian attacks. Still, some men died, killed in ambush.

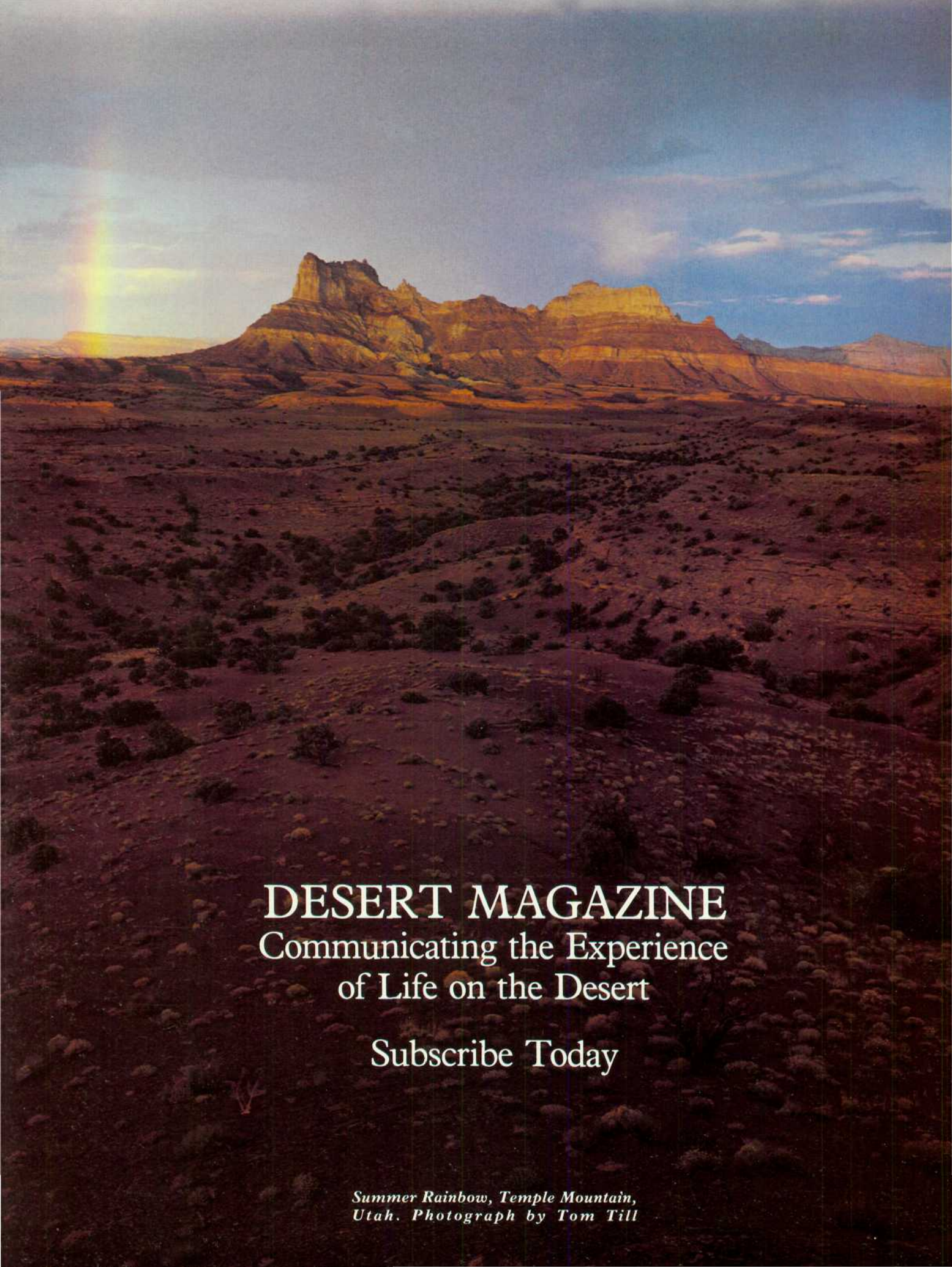
The ore was treated in 12 reduction furnaces located on the property. Then the bars of still impure silver were loaded onto wagons, hauled overland to Guaymas, Mexico, and there were loaded aboard ships that carried the treasure around Cape Horn to Swansea, Wales, for final treatment.

In the three years from 1860 to 1862, Mowry mined more than $1.5 million in silver. He became wealthy and prominent in local politics. He was twice elected delegate to the U.S. Congress by his fellow Arizonans with the mandate to obtain separate territorial status for Arizona and, in time, statehood. Twice Arizona's bid for separation from New Mexico Territory was denied, because the powers in Washington feared that the many Southerners in Arizona would insist on extending slavery.

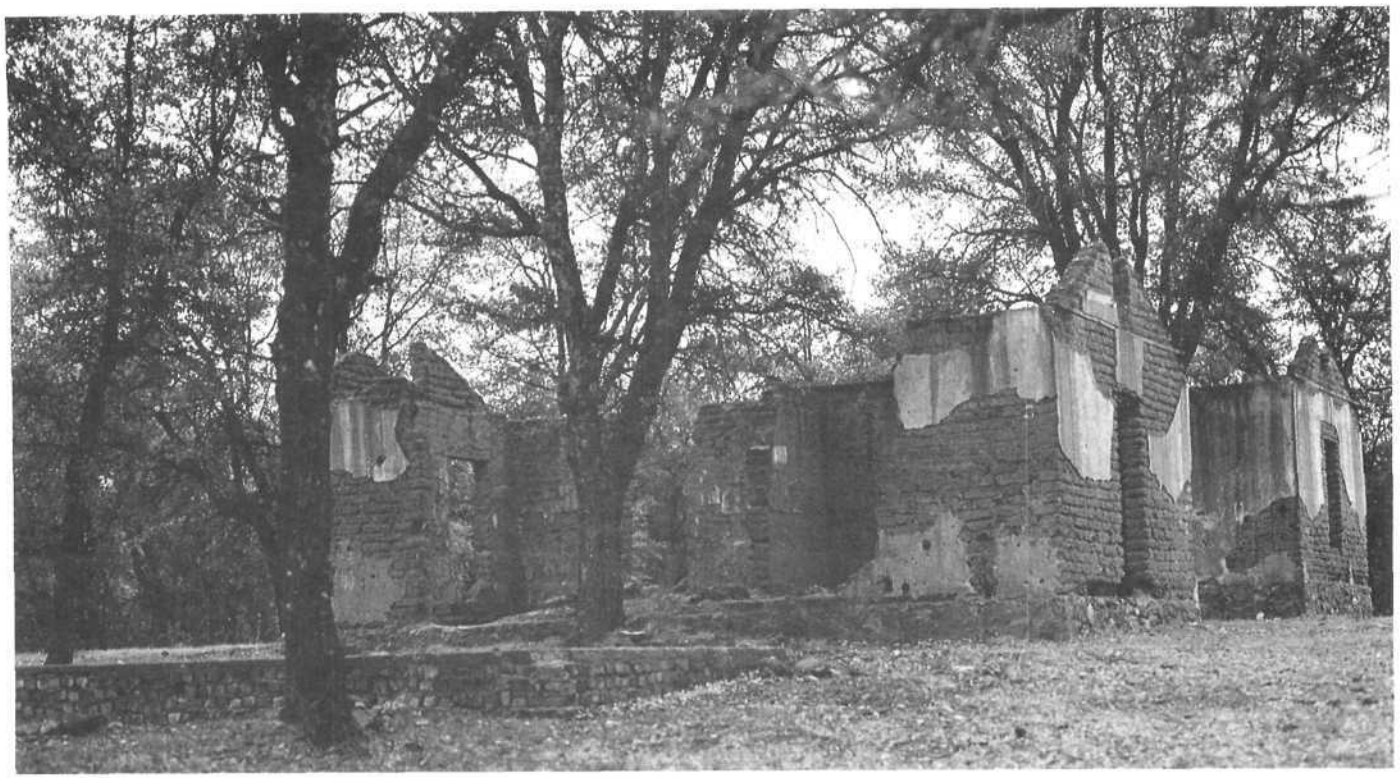
The collapsed main shaft (opposite page) at the Mowry Mine is about 75 feet deep and partially guarded by modern barbed wire.

MINE





Summer Rainbow, Temple Mountain, Utah. Photograph by Tom Till



This adobe ruin is thought to have been used as quarters for the owner and his guests.

Mowry's politics also brought him into conflict with another mining man who was against statehood. An article in the local (and only) paper led to a public exchange of insults between one Edward Cross and Sylvester Mowry. A challenge was issued and a duel scheduled, the men meeting at Tubac in July, 1859. The first shots were exchanged but both men missed. The second round was fired, Cross missed again and Mowry's pistol failed to fire. The referees then decided Mowry deserved another shot, but he refused to fire at the unarmed Cross and fired instead into the air. Both men, unscathed, declared the matter ended and shook hands. Mowry later bought the paper, the *Arizonan*, and moved the press to Tucson where it continued publication until the outbreak of the Civil War in 1861.

IT WAS A time of chaos. Just prior to the Civil War, a young Army lieutenant started an Indian war in Arizona when he tried to arrest the Apache chief, Cochise, for a crime he had not committed. Then when the Civil War broke out, the Army's frontier outposts were ordered abandoned and burned, and all of the troops were sent to the east. Arizona was left undefended, at the mercy of the Apaches, who had no mercy. When the Indians saw the soldiers depart, they immediately attacked the defenseless Arizonans. Hundreds of men, women and children were slaughtered, ranch houses were burned and mines became the graves of the miners. To add to the problem, Mexican bandits saw their opportunity and began raiding to the north.

The region from Tucson south to the Mexican border became a waste, one traveler writing that you could ride the entire 65 miles and never be out of sight of a fresh grave. Mowry, like other Arizonans, appealed for help. He wrote impartially to both Washington and to Richmond, Virginia, the capitol of the newly-formed Confederacy.

The political situation in Arizona remained in confusion. At first the area was controlled by a group of Texans who favored the Confederacy. Then a volunteer army from California defeated the Texans at a battle near Picacho Peak, and set up headquarters in Tucson. When the leader of the occupiers, General James Carleton, established his command, he found most Tucsonians favored the South, and his ego seemed to suffer from this lack of enthusiasm on the part of "his subjects." He also received a letter, signed "T. Scheuner, Metallurgist, M.S.M.," that accused Sylvester Mowry of aiding the Confederacy, purportedly by selling them percussion caps, and of stating that, "Twenty Southerners could whip a hundred Northerners." Angered, General Carleton ordered Mowry to present himself at Army Headquarters in Tucson, forthwith.

Mowry's arrival in Tucson must have been quite a spectacle. Tucson then was a dusty collection of run-down adobe huts, mostly populated by outcasts driven from the mining camps of California, and chased out of Texas for rustling. It was said that dead mules lay in the streets until scavenging dogs carried off the bones. Mowry came in a fancy carriage, accompanied by his private secretary, personal servant and his mistress.

General Carleton and Sylvester Mowry disliked each other on sight. Mowry told the General he was "a non-participant in the war, and not on anyone's side." This "neutral" attitude displayed by a former U.S. Army officer infuriated Carleton, so the General called a Board of Inquiry that summarily tried, convicted and sentenced Mowry to the Territorial Prison at Yuma.

History records that Mowry's term as a prisoner wasn't very hard to take. His time was spent on picnics and horseback rides with the officers at Fort Yuma, who were friends from his old Army days. The thing that ruined him financially was an order from the U.S. District Court in Albuquerque, obtained by Carleton. Mowry's mine was seized and briefly operated by General Carleton, and then sold at auction for only $2,000. While it was in

Carleton's hands, it was operated on behalf of the United States government, probably the only time in history that the country was in the silver mining business.

Mowry appealed to the court and was eventually released, for there had been no evidence that proved his guilt. He then sued General Carleton and the government for damages in the 4th District Court of California. He was awarded $40,000, hardly adequate compensation for his imprisonment and long-term loss of a million-dollar mine which was returned to him in ruins, stripped of machinery and plundered.

Mowry traveled to England after his release in an attempt to raise capital to reopen his mine, having already gained at least moral support by writing a best-selling book about Arizona and his silver mine. Further assistance came from another noted writer of the day, John Ross Browne, who also wrote a book about Arizona and the Mowry Silver Mine.

Unfortunately, however, Mowry became ill while in England, and died. His mine was sold at auction in 1874. In the interims between his imprisonment, trip to England, death and the auction, the mine had been operated by claim-jumpers who were brave (or foolish) enough to risk death from the Apaches. After the auction, the mine was worked by different combinations of owners until 1907, when it was sold again. Mining then ceased, but some re-smelting operations were done on the tailings in 1950. Since that year it has been idle, and the many ruins on the claim have been unguarded. Some are adobe, others of beautiful field stone. It is difficult to date the ruins. Along the mountainside are collapsed tunnel openings; open ventilation shafts through solid rock, dropping a hundred feet into darkness; and numerous tailing piles. The whole mine area is like an unkempt park with gently rolling, grassy fields, huge trees and many paths and roads.

A TRIP TO the ruins of Mowry's Silver Mine offers several extra attractions. There are other ghost towns on the road, both before and after the Mowry site, as well as other sights. Let's start our trip in Tucson. It will take a full day and 200 miles. From Tucson, go east on Interstate 10 to the exit for State Highway 83, about 20 minutes traveling time. Turn right (south) 26 miles to Sonoita. This road is very good, paved, and passes over a scenic group of mountains. At Sonoita, bear right on State Highway 82, an equally good road which takes you to Patagonia, 12 miles away.

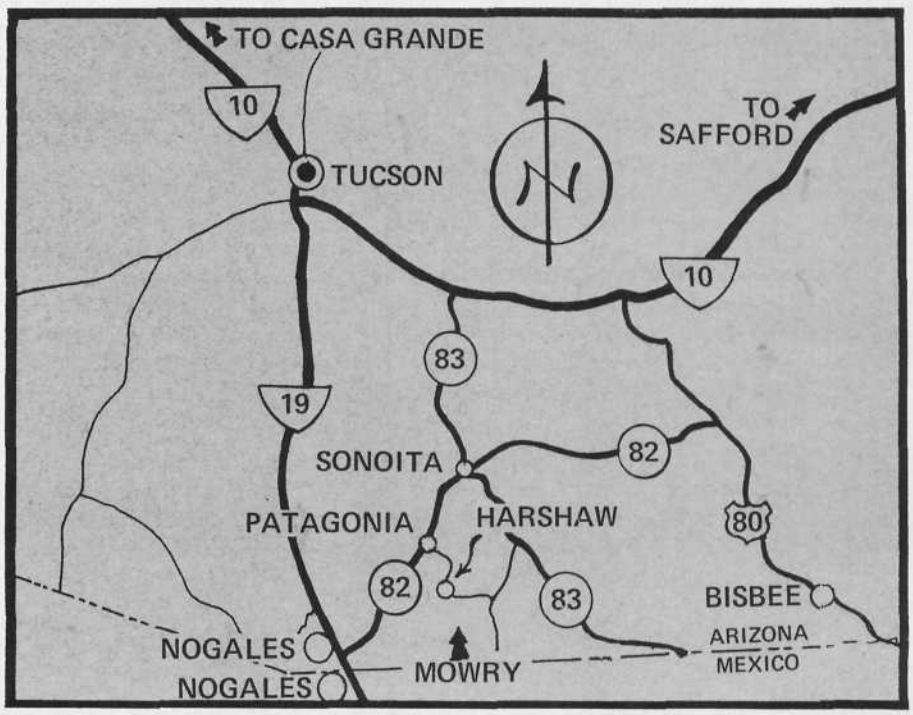
In Patagonia [*Desert*, March 1979] you'll see an old railroad depot on your left. Turn left at the depot and go one short block to the street that parallels the road you've just left. This is McKeon, and here you might want to take time and visit an unusual attraction, the Museum of the Horse, just down the street to the right. Admission is inexpensive, for it is a labor of love for owner Anne Stradling, who has collected memorabilia of the horse from prehistoric times to the present. You'll see original Remingtons, photos, saddles, life-sized models and a splendid assortment of restored carriages.

While parked at the museum, try a meal or snack in the dining room of the Stage Stop Motel. The food and service are excellent, the prices moderate and the decor interesting in the glassed dining room with views of the patio and pool and always blooming flowers. Then, when you wish to leave for the Mowry Mine, go back on McKeon in the general direction from which you came into town. This road heads up a hill, past the church, then turns and goes out of town, turning southward into the countryside. It is a paved road, but rough.

Six miles from town, the road meets a fork. Turn right, toward Harshaw; the other fork goes to Parker Canyon. Two miles down this dirt road, you'll come to another intersection where a dirt road branches to the left. At the corner is an adobe ruin. This road was the main street of Harshaw, a once thriving community built to serve the Hermosa Mine. When the minerals ran out, the town died. If you go to the left, about one-eighth of a mile, you'll see a couple of interesting homes, one still occupied. Back at the main dirt road, look to your right, at the hill. There you'll find an old cemetery, still in use. Some graves are quite recent and some very old, just piles of rocks, with the wooden crosses rotted away. At one time, 2,000 people lived in Harshaw but during your visit, you'll probably be the only person in sight.

Go five miles further on the main dirt road to reach Mowry. Along the way the terrain gets more rugged, with deep valleys and run-down looking homesteads. The creek that runs along the road crosses it at several locations. You will know when you reach Mowry: there is a private residence on the right, the home of a rancher, with pens built near the road and a windmill on the left, built very near the road. Look for a dirt road going left and park about a hundred feet in, on the rise of ground.

If you look to the left, up toward a high hillside, you'll see the mine site. Roam around and inspect the many ruins. Be careful of open shafts if you climb up the hillside past the tailing piles. The ridge is terraced. Along the ridge is the collapsed mine shaft, ventilation shafts, a beautiful field-stone building without a roof and two metal tanks, high to the right, hidden in the trees. These ruins are all that is left of one man's transient dream.



Desert Funnies Presents

CACTI

TEXT BY ED SEYKOTA, ART BY GITTA PFAHL

"On Problems and Processes"



*A dust storm is a windstorm that sweeps up clouds of dust while passing over an arid region.

A Gallery of Common
DESERT INSECTS
with Uncommon Lifestyles

by Susan Durr Nix

What purpose has a common name in the world of biology? Not much, if you want a technically accurate identification. For the lay person, though, common names are often vivid characterizations that breathe life into what would otherwise be undifferentiated or ordinary. That plain black beetle becomes the unforgettable stink bug; this caterpillar, a delightful inchworm. If there is a problem with common names, it lies not in imprecision but in overemphasizing single traits. Most invertebrates lead far more interesting lives than a common name can convey.

PRAYING MANTIS

The premiere insect predator is without doubt the praying mantis. Concealing coloration, a lightning-fast attack, jackknife claws with sharp piercing spines and an insatiable appetite make its prayerful attitude an irony. They would be better called "preying" mantids.

Mantids are the only insects that can look "over their shoulders." Their heads swivel until the enormous eyes point directly at insect prey. The angle of strike is computed with pinpoint accuracy by the degree of head-turning that is registered on sensory hairs at the base of the neck. A complete attack sequence takes only 30 to 50 thousandths of a second, but even without the possibility of mid-strike corrections, mantids catch their prey 85 percent of the time.

A male mantis often loses his head over a female. She bites it off during copulation to remove his inhibitions. With his nerve center gone, the male's body continues to copulate vigorously, ensuring fertilization. Such devouring "love" also provides nourishment for the female's developing ovaries.

INCHWORM

The name inchworm or measuring worm belongs to caterpillars on their way to becoming rather dull looking geometrid moths. They loop along by stretching forward and grasping with the front legs, then arching their bodies to pull the tail end up close behind the head. Other caterpillars propel their fluid-filled bodies with pairs of "false legs" on the midsection, which the inchworm lacks, in combination with muscular contractions. Each false leg has suckers and hooks which grip and release in response to waves of movement, "walking" the caterpillar along.

Geometrids are masters of camouflage, foiling hungry birds by projecting themselves, twig-like, at rigid angles from branches. Fleshy tubercles eliminate telltale shadows where the caterpillars hang on, completing the illusion. Many adult geometrids use this "Peter Pan effect" (no shadow) to escape detection by pressing their bark-colored wings flat against tree trunks. In this position, they are nearly invisible.

HOVERFLY

Another nectar-eating insect is so closely associated with flowers that it is widely known as the flower fly. This is the hoverfly, a close relative of houseflies despite its resemblance, by coloration and behavior, to bees and wasps.

Hoverflies are superb aerial gymnasts. Like other true flies, they have only two wings, which are powered by muscular tissue unequaled for speed in the animal kingdom. They are all able to loop, swoop, hover, climb vertically and fly forward, sideways, upside-down and backward, shifting course in a fraction of a second.

Hovering like a helicopter is most highly developed in flower flies, which defy complex wind currents to look as if they were standing still. Their wingspeed is an incredible 120 beats per second. Hoverflies are important pollinators whose larvae feed voraciously on aphids and other small insects.

TARANTULA HAWK

Tarantula hawks are not birds but large, solitary Pepsis wasps. As the name suggests, they are to spiders what hawks are to rodents, with one difference: the wasp herself doesn't eat her prey; she uses it for baby food.

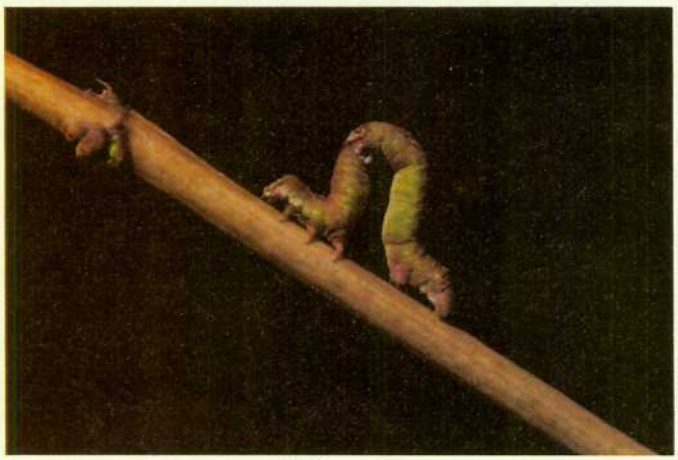
One-tenth the tarantula's weight and several times smaller, the wasp has the upper hand, nevertheless, by virtue of her potent sting. This is delivered by a piercing shaft braced by two barbed lancets that pump it full of exactly enough venom to paralyze and preserve, rather than kill, the spider.

Then begins the laborious journey back to the wasp's spider-sized burrow. Although it may be several hundred yards away, the tarantula hawk drags the spider straight to it, using memorized landmarks. She seals the tarantula inside after laying an egg, which hatches three days later and feeds on the living larder. From this grisly beginning comes an adult wasp whose nourishment is strictly flower nectar.



BUDDY MAYS

Praying Mantis



BUDDY MAYS

Inchworm



PHIL HERMANN

Hoverfly



RON WEST

Tarantula Hawk



RON WEST

Stink Bug

STINK BUG

Stink bugs are the skunks of the insect world. At the slightest disturbance, they elevate their abdomens and let fly with a smelly secretion that repels all but the most determined predators.

One such is the grasshopper mouse, a vicious little carnivore if ever there was one. Only momentarily daunted by the stink bug's repellant, the mouse thrusts the beetle's offensive end into the ground and eats the rest. A lookalike but stinkless beetle uses the raised abdomen posture to fool scorpions, tarantulas and other stink bug avoiders into finding a meal elsewhere.

These beetles have sacrificed the ability to fly for some protection from the weather. Under their fused wing covers, where the flying wings are normally located, there is an insulating pocket of air. Glossy black and up to two inches long, stink bugs are numerous and highly visible residents of even the most inhospitable desert environments. Decaying plant material and an occasional tender tumbleweed supply all the nourishment they need.

WHIP SCORPION

Another creature with a built-in repellant is the vinegaroon or whip scorpion. His anal gland rotates to spray a vinegar-scented "aerosol" mist that is very irritating to mucous membranes. The secretion contains a solvent that helps dissolve the exoskeleton of insect prey.

Vinegaroons are reclusive creatures, usually found under rocks, logs or sandy burrows. Their whip "tail," suggestive of a scorpion's stinger, is a harmless, probably tactile, organ. A massive pair of pincers and an extra-long first pair of legs contribute to their ferocious appearance. Vinegaroons can pinch, but are otherwise harmless.

Whip scorpions, like their namesakes, are nocturnal. Females of both groups carry newly hatched young on their backs for five or six days until the first molt, when they drop to the ground. By this time the female vinegaroon's strength is nearly spent, for she has previously supported her entire brood in a membranous sac under her abdomen. Female scorpions are not so burdened. They bear live young, one or two at a time, over a period of weeks.

WIND SCORPION

Solpugids, commonly called sun spiders or wind scorpions, are a cross between spiders and scorpions, although they lack the venom of the one and the stinging tail of the other. A solpugid might be mistaken for a spider but for its massive tearing jaws, said to be the strongest, relative to size, in the animal world. When attacked, its abdomen bends up much like a scorpion's.

What appear to be 10 legs are differentiated by function: six are used for racing along the ground, "like the wind." Two operate like feelers. The foremost are actually elongated pedipalps, covered with delicate sensory hairs and tipped with adhesive suckers used for climbing smooth surfaces and capturing prey. Two beady black eyes peer comically over the jaws.

A ravenous appetite, even for much larger animals like lizards, makes solpugids formidable predators. They pounce, then speedily rip, suck and chew their prey to a pulp. Because they are also cannibalistic, courting males take the precaution of stroking females into a trance before attempting to mate. Solpugids give humans only harmless bites.

WALKING STICK

The walking stick family claims the longest insect in the United States, six to seven inches, and the longest-living insect in the world, a 15-inch long New Guinea species. Best known as consummate mimics, walking sticks also have a back-up defense system: a foul smelling chemical substance to deter sharp-eyed predators.

An elongated, usually wingless body and coloration which may change, chameleon-style, disguise this plant eater in foliage and on branches. The effect is enhanced when they sway to and fro, like twigs in the breeze, or pass into a state of rigid suspended animation. Move a walking stick's legs when it is in this condition and it will hold the pose as if frozen.

Walking sticks are one of the few insects capable of regenerating lost limbs, and are known to reproduce asexually. The female is the only known insect which makes absolutely no provision to protect her eggs. Scattered willy-nilly, they seem much to small to hold so large an insect.

RED SPIDER MITE

Mites are minute, pesky creatures that live in some of the most unusual places—in moth "ears," under bat wings and in bird nostrils, for starters. The most familiar are red spider mites, those tiny red, yellow or orange specks that make their home on favorite house plants and other vegetation.

Spider-like, they weave sheet webs among leaves and live in great numbers beneath them, sucking on plant juices. Because of an acquired immunity to pesticides, they are very difficult to control with chemicals. Biological control, in the form of a predatory mite relative, is more successful.

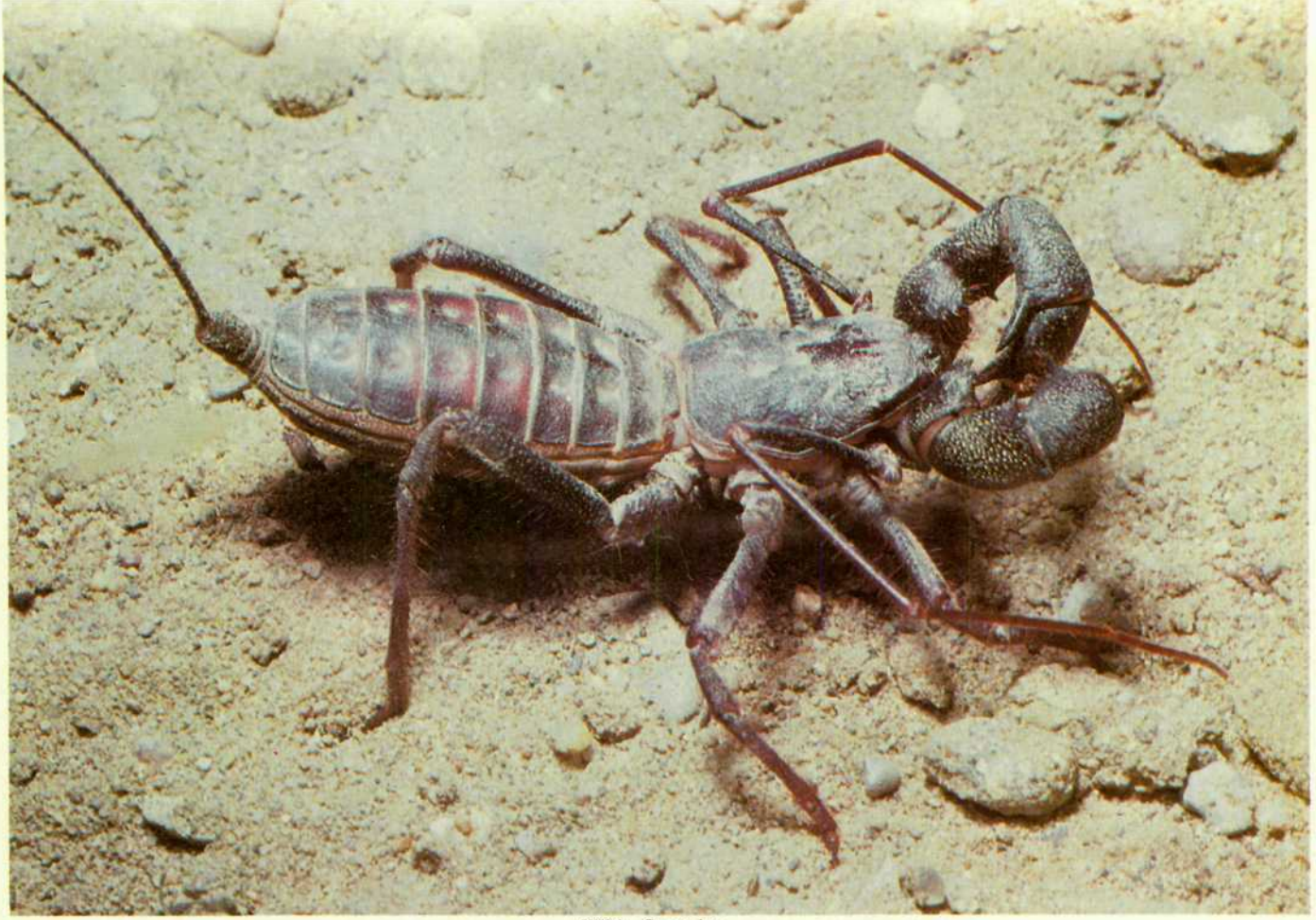
The sex life of mites is somewhat like that of spiders. The male transfers a packet of sperm to the female, which she stores for future use. Unlike spiders, however, mites lay eggs singly and at long intervals. Apparently, fertilization is not automatic because males develop from unfertilized, females from fertilized, eggs.

BLISTER BEETLE

Our blister beetle's most notorious relative is the Spanish fly, whose caustic defensive fluids are a supposed aphrodisiac. Although the same chemical, cantharidin, is concentrated in the bodies of American species, these insects are known for inflaming skin rather than passions.

Disturbing one of them triggers reflex bleeding behavior. The beetle's abdomen contracts until its blood pressure is so high that the cuticle ruptures and fluid squirts out. Blistering and a nasty burning sensation are the reward of the curious.

The life cycle of these beetles is very unusual. From thousands of eggs emerge active larvae resembling tiny silverfish, which climb nearby vegetation and attach themselves to visiting bees, grasshoppers and other hosts. Most hitch onto the wrong ride and perish. Successful ones reach the host's eggs and parasitize them. Soon after, they molt, first into inactive, maggot-like creatures and then into four or more larval instars, including a hibernating form, before pupating into adults. Called hypermetamorphosis, this cycle flawlessly synchronizes body form and food supply.



BUDDY MAYS

Whip Scorpion



RON WEST

Wind Scorpion



BUDDY MAYS

Walking Stick



BUDDY MAYS

Red Spider Mite



BUDDY MAYS

Blister Beetle

The mail service that saved the Union

THE PONY EXPRESS

by J. Caruso

WANTED— Young, skinny, wiry fellows, not over eighteen. Must be expert riders willing to risk death daily. Orphans preferred. WAGES $25 per week. Apply, Central Overland Express, Alta Bldg., Montgomery St.

WHEN THIS ad first appeared in a San Francisco paper in 1860, there were half a million people living west of the Rockies. Few of these people thought of themselves as settlers. They had come west following the discovery of gold at Sutter's Mill in 1848, when the whole country had gold fever. They packed into ships for the long trip around Cape Horn, or went as far as the Isthmus of Panama where they had to endure the hardships of crossing the jungle, or they came by covered wagons fighting disease, drought and Indians.

These adventurers had come west to make their fortune and then return to their families back east. They all had one thing in common: they still considered themselves easterners and longed for news from home. It was becoming obvious that the *mañana* method of mail would no longer suffice. Mail had been transported by ship to Panama, carried across the Isthmus and loaded on another ship for delivery to California and Oregon. Arrival was uncertain, but the mail was always a month to six weeks old if and when it did arrive.

As war between the states became imminent, the Union government realized it must find another method of communication between east and west. The most widely used mail routes, the Butterfield Trail and Panama, would surely fall to the Confederacy and isolate Union sympathizers. With this in mind, the Union was very anxious to establish a relatively secure mail route to the north. Without news from the north, California would probably secede from the Union.

In the winter of 1859-60, William Russell, senior partner in the freighting firm of Russell, Majors & Waddell, was in Washington to obtain government freight contracts. During this time Russell met Senator William Gwin of California. Gwin brought to Russell's attention the need for quick, reliable mail service traversing a more northerly route. A Union sympathizer himself, Russell immediately saw the importance of this. At the same time, he saw what seemed to be a good business opportunity. If RM&W could deliver the mail through the harsh winters and reduce delivery time over the Panama route, Russell was sure the government would give his firm a contract to carry the transcontinental mail.



PONY EXPRESS STABLES MUSEUM

Billy Richardson and Johnny Fry, standing, and Charlie and Gus Cliff, seated, rode the first leg from St. Joseph, Missouri. History disputes whether Richardson or Fry rode out the first day.

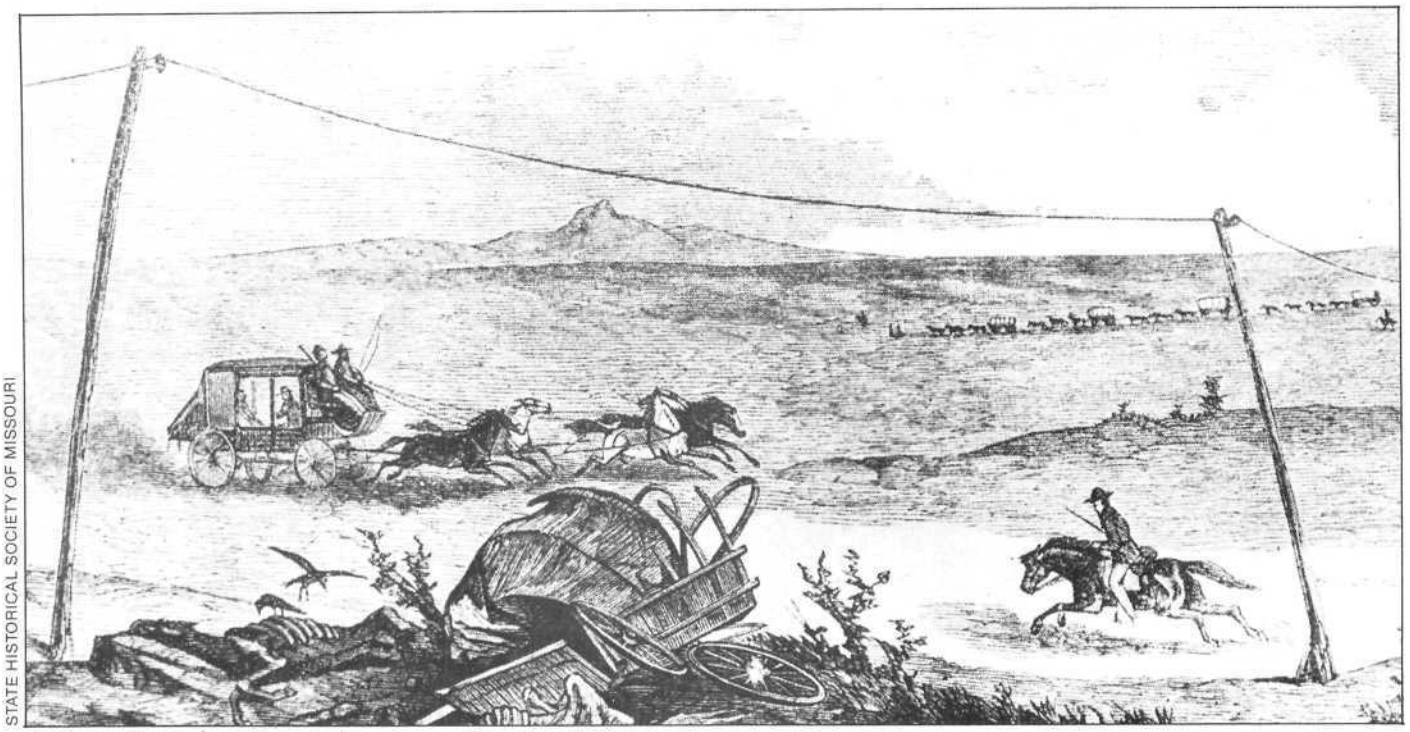
After returning home, Russell informed his partners of the new venture. Seeing the huge costs involved and no possibility of profits, Majors and Waddell were not too interested in the project. However, the integrity of this firm was such that when one of the partners gave his word, the others helped him keep it, regardless of the consequences. Reluctantly, RM&W began preparations early in 1860 for what would be called the Pony Express.

They organized the Central Overland California and Pikes Peak Express Company to deal with this new enterprise. They had to plan the route, build relay stations every 10 to 15 miles and fully equip them for men and horses. Reliable men had to be hired as riders and station keepers, and the best horses money could buy had to be found. The Pony Express was to carry the mail for 2,000 miles between St. Joseph, Missouri and Sacramento, California. Delivery was promised in 10 days.

Since the riders would depend on speed to escape hostile Indians, only the fastest horses would do, and the weight limit for each animal's load was 165 pounds. This allowed 20 pounds for the mail, 25 pounds for the equipment and 120 pounds for the rider.

The mail was carried in a *mochila.* This was a mail bag made of tough, well-tanned hide about one-eighth inch thick, with four stiff leather *cantinas* or pockets to hold the mail. The mochila had openings in the center so it would fit snugly over the horn and tree of the saddle, but still could be quickly lifted off and thrown on the saddle of a waiting fresh horse. The four cantinas were kept securely locked, but station keepers had a key to one pocket in which a time card was placed for recording arrival and departure times along the route.

Letters were written on the thinnest tissue paper and wrapped in oil silk to protect them against moisture from stormy weather, fording streams or perspiring animals. At first, the postal charges were $5.00 for each half-ounce letter, but this rate was later reduced to



STATE HISTORICAL SOCIETY OF MISSOURI

A Pony Express rider dashes by an Overland Stage, an emigrant wagon train and the Express' own demise, the transcontinental telegraph.

$1.00 by the Post Office Department.

Native mustangs were used for the western part of the trail because of their speed and stamina. These traits were needed to keep the pony going through the rough mountains in bitter cold and deep snow. Thoroughbreds, however, were bought for the eastern leg of the Pony Express at a cost of $150 to $200 each. That was high for those days, but well worth the price because their great speed would enable the rider and mail to outrun hostile Indians on the open plains. More than 500 horses were used during the 18-month duration of the Pony Express.

The riders dressed to suit themselves. They usually wore a red flannel or buckskin shirt, cloth or buckskin trousers tucked into high leather boots, and a hat or cap.

These men had to be light as jockeys, with the endurance to ride 50 miles at top speed. They were the pick of the frontier, and paid anywhere from $50 to $150 per month, which was a good salary in 1860. Many were very young, 14 or 15 years of age, but being brought up on ranches, they were already expert riders. They were noted for their wiry physiques, bravery, endurance, and coolness in times of great personal danger.

These men were imbued with the excitement of the Pony Express, and took their vow of loyalty and honor to this unusual venture very seriously. Herodotus, the ancient Greek historian, wrote about another rapid horse relay mail system 2,500 years ago. His words seem to perfectly describe the courage and dedication of the Pony Express riders: "Neither snow, nor rain, nor heat, nor gloom of night, stay these couriers from the swift completion of their appointed rounds." [Ed. Note: The U.S. Post Office still clings to this slogan despite the vulnerability of present transport to the two first-mentioned hazards.]

The idea of the Pony Express was not new. A post-horse system was used by Xerxes, ruler of the Persian Empire 2,500 years ago. The Roman Empire also had a very efficient courier system, but the finest horse relay system was the one organized by Genghis Khan in 13th Century China.

All employees of Russell, Majors & Waddell were given a calf-bound Bible and were required to take an oath promising not to swear, drink intoxicating liquors, abuse their horse or quarrel with other employees. They had another unwritten rule that was even harder to honor: Mail first, horse second and self last.

ON APRIL 3, 1860, one of the west's most colorful and romantic epics began. Amid the firing of a cannon and excited crowds, the first pony rider left St. Joseph at dusk on a bay mare named Sylph. The pony galloped down to the Missouri River and was ferried across by the steamboat *Denver*. The first rider out of St. Joseph is not known for sure, but is thought to have been Johnny Fry or Billy Richardson. This first mail westward consisted of 85 letters, one a congratulatory message from President Buchanon, and a St. Joseph newspaper. For once, the western settlements would receive fresh news.

Once across the Missouri, the rider knew that he would have to ride 40 miles over black, muddy roads before turning the mochila over to the next rider westward. The stations and fresh horses were ready and waiting every 10 to 15 miles. At each stop, the mochila was swept from the back of the arriving horse and quickly fitted into place on another fresh horse already saddled, bridled and ready to run.

At the same time the westbound mail was leaving St. Joseph, the eastbound mail was placed on board the steamer *Antelope* at San Francisco and rushed upriver to Sacramento. Upon arrival in Sacramento, the steamer was greeted with the blare of bands, the firing of guns, floral decorations lining the streets and the unfurling of flags. Sam Hamilton became the first rider east as he dashed through the streets on a white bronco to begin his ride just five minutes after the steamer had arrived. Seventy-five letters were carried in Hamilton's mochila.

The first run from St. Joseph to Sacramento took nine days and 23 hours, one hour ahead of schedule. The first eastbound run took exactly 10 days. An amazing feat, considering that Warren Upson's part of the trip over the Sierra

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Nevadas was made in a blizzard. He was all but blinded by the snow and had to be constantly on guard against slipping over a precipice. He reached his destination a little behind schedule, but proved that if the Express could operate against such impossible odds, nothing foreseeable would stop the mail from getting through.

Perhaps the best description of the excitement of the Pony Express in action came from Mark Twain in his book *Roughing It*:

Here he comes! Every neck is stretched further, and every eye strained wider. Away across the endless dead level of the prairie a black speck appears against the sky, and it is plain that it moves . . . So sudden is it all, and so like a flash of unreal fancy, that but for the flake of white foam left quivering and perishing on a mail sack after the vision had flashed by and disappeared, we might have doubted whether we had seen any actual horse and man at all, maybe.

Thus Mark Twain immortalized a Pony Express rider he had seen from a westbound stage.

The riders apparently weren't aware of their own heroism. Among the most daring was "Pony Bob" Haslam, who rode in Nevada and California. His famous ride took place in May, 1860, during the Paiute War. At Friday's Station, at the southern tip of Lake Tahoe, he received the eastbound mail and galloped off for Buckland's Station, 75 miles away. Enroute, he stopped at Reed's Station, east of Carson City, where he found all the relay mounts had been taken by citizens to pursue Winnemucca, leader of the Paiutes. He stopped just long enough to feed his horse before pushing on to Buckland's.

At Buckland's he found Johnny Richardson, his relief rider, too afraid to take the mail through the dangerous Indian territory. The station keeper, W.C. Marley, offered Haslam a bonus of $50 if he would carry the mail on to Smith's Creek. Out of duty to the Pony Express, he continued his hazardous journey. He changed horses at Sand Springs and again at Cold Springs before reaching Smith's Creek, where he was finally relieved by Jay Kelley. Haslam had raced 190 miles without rest, exposed to hostile Indians for the entire distance.

Nine hours later, he was back on a pony with the westbound mail. Upon arrival at Friday's Station, Haslam had ridden 380 miles in 36 hours, and the mail was delayed only a few hours.

"Pony Bob" played a major role in another of the greatest rides in American history. In March, 1861, Haslam carried Lincoln's inaugural address from Smith's Creek, Nevada to Ft. Churchill, Nevada, 120 miles away. Though badly wounded by warring Paiutes, he made the trip in eight hours and 10 minutes. Haslam's epic ride was one leg of the fastest trip ever made by the Pony Express. The mail was carried from St. Joseph to Sacramento in seven days, 17 hours.

The longest ride without a formal rest ever made by a Pony Express man is credited to "Buffalo Bill" Cody, who at the age of 15 rode 322 miles in 21 hours on 20 ponies, and completed the run both ways on schedule.

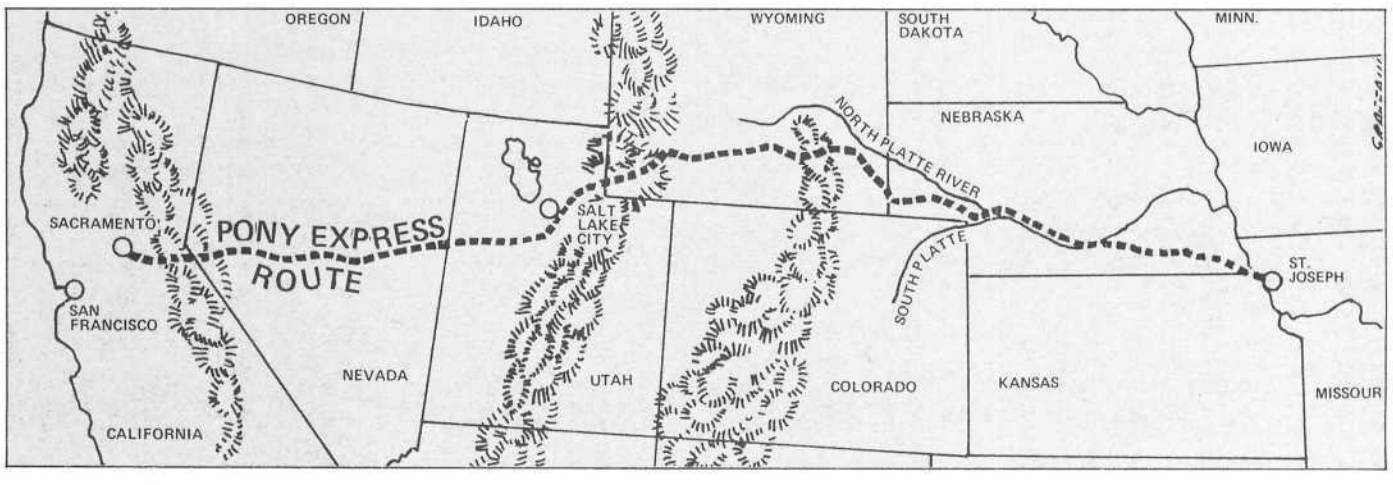
The Pony Express was a failure financially for Russell, Majors & Waddell, but it accomplished its great goals. It blazed the way to the west, helped preserve the Union, and left us a legacy of true adventure story.

October 24, 1861, marked the end. On that day, the transcontinental telegraph was formally completed when the wires from the east and the west were linked at the old telegraph station on Main Street in Salt Lake City.

For 18 months of dedicated service, the Pony Express had made 308 runs —day and night, in rain or snow, through the uncharted desert, across perilous mountains and raging streams, through pathless forests, and always amid hostile Indians. Only one mochila was lost and that happened to be mail of little importance. Only one rider was killed by Indians, but his pony escaped with the mochila and the letters were promptly forwarded to their destination.

The most moving tribute to the swift pony came in an editorial written by a Mr. McClatchy of the Sacramento *Bee* on October 26, 1861:

FAREWELL PONY: Our little friend, the pony, is to run no more. "Stop it" is the order that has been issued by those in authority. Farewell and forever, thou staunch, wilderness-overcoming, swift-footed messenger. For the good thou hast done we praise thee; and, having run thy race, and accomplished all that was hoped for and expected, we can part with thy services without regret, because, and only because, in the progress of the age, thou hast been superseded by a more subtle, active, but no more faithful, public servant. Thou wert the pioneer of a continent in the rapid transmission of intelligence between its peoples, and have dragged in your train the lightning itself, which, in good time, will be followed by steam communication by rail. Rest upon your honors; be satisfied with them, your destiny has been fulfilled—a new and higher power has superseded you. Nothing that has blood and sinews was able to overcome your energy and ardor; but a senseless, soulless thing that eats not, sleeps not, tires not—a thing that cannot distinguish space—that knows not the difference between a rod of ground and the circumference of the globe itself, has encompassed, overthrown and routed you. This is no disgrace, for flesh and blood cannot always war against the elements. Rest, then, in peace; for thou hast run thy race, thou hast followed thy course, thou hast done the work that was given thee to do.

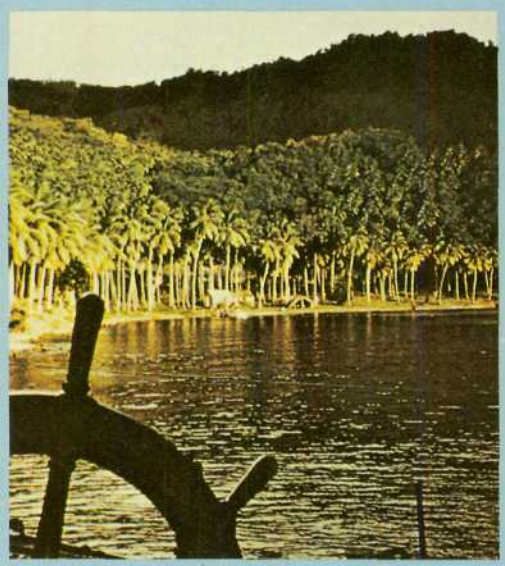














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A Sociologist's View:

ILLEGAL IMMIGRANTS PAY OWN WAY

by Dr. L. H. Gann

Elko, Nev.—A new specter has come to haunt our land—the specter of the illegal immigrant. He is commonly, though not always, of Mexican birth. He is generally young, male, and he frequently supports one or more dependents in his own country. His main reason for coming to the United States is to find a job, and he rarely fails to do so.

The illegal immigrants' alleged failings are many. It is claimed they compete unfairly with American workers and thus lower the wage rates. The illegals add to the taxpayers' welfare burden. The men and women who cross our borders vastly increase the American population, and thereby render ineffective existing forms of population control; they accordingly place new burdens on the diminishing ecological resources of the nation. The illegal immigrants, some say (though not loudly), belong to the most backward strata of their own country: their religious bigotry, machismo, and male chauvinism clash with the new American lifestyle, which centers on personal growth and sensitivity. The illegal immigrants will Hispanicize the country. They add to our crime rate. The complaints continue.

What are the facts? Between 1820 and 1975, something like 47 million immigrants lawfully entered this country. In recent years, legal immigration has been supplemented to an extraordinary extent by illegal immigration. No one knows exactly how many have come; according to published reports, the Immigration and Naturalization Service in 1961 apprehended 88,823 illegal aliens. Fifteen years later, their number increased to 875,915, of whom 765,095 were expelled. At this moment, analysts estimate that something like six to eight million illegal aliens dwell in our midst.

Contrary to prevailing stereotypes, no more than about one-fifth are employed in farm work. They do all kinds of other rough jobs, laboring in textile manufacturing, food processing, construction. They usually get lower wages for their work than legal residents, but they are not necessarily ill-paid, and wage rates among them differ considerably. There is no evidence that by their mere presence they lower wage rates. On the contrary, by contributing to the economy in their dual capacity of consumers and producers, they help to raise both their neighbor's living standards and their own.

Stereotypes not withstanding, the illegal aliens make few demands on the United States taxpayer. Few aliens collect unemployment benefits, go on welfare, receive food stamps or use Medicaid. For obvious reasons, they shun the kind of public subsidy which, according to many experts, keeps the poor from starving. But, the illegals do not die of hunger or deprivation; they work hard for their living. When they are in need of assistance, they apparently derive help from kinsmen, friends and churches. Far from burdening the public treasury, the illegals mostly contribute to it through Social Security and federal income tax payments withheld from their paychecks, without corresponding benefits.

The opponents of immigration assume that the United States has reached the limits of

Continued on page 36

PAINTED DESERT ROCKS CAUSE PROTEST

Mount Sinai, Egypt—A French artist with 13 tons of paint is well advanced on a controversial plan to paint large expanses of a desert valley near biblical Mount Sinai.

Though the project was authorized personally by President Anwar Sadat, ecologists and desert lovers in Israel have protested what they call "desecration of a beautiful natural region" which was under Israeli control until a year ago, when the Egyptians moved in under the terms of the Israel-Egypt peace treaty.

Jean Verame, who calls the work "Sinai Peace Junction," dismisses the criticism as mere dogmatism and says he is adding the "human dimension" to nature.

"I am a nature lover," he says. "I destroy nothing. Nature has its dimensions, and I add a human dimension by adding color to point something up."

He began to paint at this remote site on the southern Sinai Peninsula in mid-October after a year of preparation, and the result is immediately apparent when one climbs the last rise and sees the bright blue boulders spotted around the otherwise unspoiled valley.

He expects to finish by mid-1981, but the paint will last for many years, perhaps centuries, with only wind-blown sand to wear it away.

The permanent nature of the work angered the Israeli Society for the Protection of Nature, which is trying to mobilize international protests.

The valley, called Bir Nafach, is about three miles from Mount Sinai in a straight line, or 10 miles of roundabout driving on sandy tracks recommended only for four-wheel drive vehicles.

—*Desert* **News Service**

NEVADA BOOTLEGGER PIONEERS GEOTHERMAL FUEL REFINERY

by Phillip I. Earl

Fallon, Nev.—Among the many proposed solutions to America's energy troubles is the utilization of the nation's geothermal resources—zones of steaming, pressurized water which underlie the earth's crust. Nevada abounds with such areas, and there is currently an innovative plan in Humboldt County to use geothermal energy to power a huge distillery making alcohol out of local potatoes.

The alcohol would be marketed for mixing with gasoline. Those who are promoting and planning the distillery believe they are breaking new ground, but theirs will not be the first geothermal alcohol operation in the state.

In February, 1927, law enforcement officials in Fallon were troubled by an increase in the number of drunken Indians on the streets. State and federal prohibition agents were called in to investigate, but were stymied by the fact that they could locate no stills and spot no fires.

Suspicion fell upon Sam Norton, a white farmer living in the Stillwater area. Investigation turned up no bootlegging apparatus on his property, but an agent staked him out and found that he would sometimes disappear into a rugged and brushy area north of his place, where geothermal springs were located. A further reconnaisance of the area turned up a tunnel into a hillside and a shaft from which steam and the smell of alcohol were rising.

A raid on the underground facility was conducted on February 17, and Norton was caught in the act with a complete 40-gallon still full of mash being cooked with hot water from an underground source he had tapped into. Also found were 11 barrels of whiskey mash and 50 gallons of honey, which Norton was using instead of sugar. Norton was naked to the waist when the agents came down the shaft, and the temperature was more than 180 degrees.

After he was brought into Fallon and jailed on a charge of possession of an illegal still, the agents returned to gather further evidence. As experts on bootlegging, they expressed some admiration for Norton's innovative equipment and his fuel system, but they destroyed it all in accordance with the law. The grain for the mash was grown locally and the honey came from Norton's own hives, thus making his operation the best and most inexpensive they had ever seen.

—Nevada Historical Society

DES BAN HIKES MEAT PRICES

Washington, D.C.—Consumers can lay a large part of the blame for increase in retail food prices at the feet of bureaucrats, according to the Farm Bureau. A case in point is an extra $3 to $5.6 billion shoppers will pay each year for meat, because of the growth hormone, DES, being banned from use in cattle feed two years ago.

DES sharply increases feed efficiency, but was banned on the grounds that 300-milligram-a-day doses given to women when pregnant had caused cancer in some of their daughters.

Efficiency gains made by U.S. farmers and ranchers which would help hold down retail food prices are being partly offset by needless and costly federal regulations, the Farm Bureau says.

—*Desert* News Service

PROMOTERS SAIL ON DRY RIVER

Tonopah, Nev.—Flowing north out of the Toiyabe range, the Reese River is one of the few landmarks to grace the maps of central Nevada. Barely ankle deep at floodtide and even less spectacular during the dry season, it could usually be forded by a wagon going at full tilt with nary a jar to the passengers.

In the mid 1860s, a group of promoters formed the Reese River Navigation Company, and issued posters showing steamers on the river towing ore barges north to the railroad which would soon run through Battle Mountain.

Gullible easterners who recalled the strategic importance of the steamer traffic on the Sacramento River during the gold rush were taken in by the scheme, and the company was soon putting out promotional literature depicting factories and mills along the river. The company's stock sold well until some of the investors came to Lander County to take a firsthand look at their enterprises. When word of the fraud got out, those behind it closed up shop and left for parts unknown.

—Reese River REVEILLE

WATT FAVORS OPENING LANDS TO PUBLIC USE

Washington, D.C.—In testimony before the Senate Energy and Natural Resources Committee, Interior Secretary James G. Watt again emphasized his commitment "to open the public lands to access for multiple-use purposes." He appeared during the committee's examination of the department's budget request.

In response to a question from Senator John Warner (R-Va.), Watt reiterated his resolve to "personally take a leadership role in establishing public policy for strategic minerals, including greater access to the public lands."

—*Desert* News Service

SENATE ACTS TO ELIMINATE BORDER CHECKS

Phoenix, Ariz.—An Arizona Senate bill that would end inspections of private automobiles for quarantined fruits and vegetables at this state's border has gone to the House of Representatives.

The bill, approved by a margin of 18 to 10, represents the fifth try by primarily urban senators to either get rid of the stations altogether or eliminate the quarantine inspections of private vehicles. Each time, the bill has died in the lower chamber.

Once again, the Senate tried the "soft" approach, which would continue such inspections for all commercial vehicles.

—Bisbee DAILY REVIEW

NEW TOE FOUND FOR FAMOUS COCKTAIL

Dawson City, Yukon—The Sluice Box Lounge's frantic search for one big toe has finally ended. The search began last summer (*Clarion*, January 1981) when miner Gary Young decided to sample the lounge's famous Sourtoe Cocktail, and accidentally swallowed the main ingredient — a genuine, preserved human toe.

The first big toe had belonged to a trapper and rumrunner who had frozen his foot and had cut off the toe to prevent gangrene. Isolated in his shack for the winter, he preserved the part by pickling it in rum.

When the existence of this pickled toe was discovered about eight years ago by a bunch of boys whooping it up in the lounge, they decided that the severed tow embodied the right kind of old-time tough spirit and that the owner should be honored. The jar with the toe was brought to the bar and the Sourtoe Cocktail — a glass of champagne with the toe floating in it—was born.

Dawson's townsfolk were outraged with the swift demise of their famous cocktail and started searching for a replacement. Many regulars were so committed to this cause that they offered to lop off their own toes.

A woman, who wished to remain anonymous, finally stepped forward and sent in a preserved toe.

Anyone who manages to down the whole drink, excepting the toe, of course, and keep it down wins an ornate certificate testifying that the bearer is "a person capable of doing almost anything . . . on any drunken moment."

—*Desert* News Service

PINSON GOLD MINE SEES FIRST PAYOFF

by Dan Nielsen

Winnemucca, Nev.—The Pinson Mine near Golconda, one of Nevada's newer and larger gold mines, recently produced its first gold brick.

The surface-mined ore goes through many processes before it finally emerges as pure gold. The ore is poured into a grinder mill along with a cyanide solution and hundreds of steel pellets. The solution is very weak. Ore normally takes about 20 minutes to get through the grinder mill. The mill is composed of a pair of large rotating drums. The rotation continually moves the ore and the steel balls; the pellets pound on the ore, grinding it into smaller pieces.

The ore enters the first drum from one end and emerges from the other in smaller pieces. It is then fed into the second drum, where it is pounded into yet smaller bits. Finally, it emerges from the grinding mill as a mud-like solution called pulp.

The pulp is fed into a cluster of cyclones. The cyclones further reduce the size of the gold ore particles. The pulp that exits from the cyclone cluster is a very fine mud. It normally takes one to two hours for pulp to get through the four cyclone units.

Next, the pulp is routed into a thickening tank. This tank, located outside the main building, allows the more solid mud to settle to the bottom. The purpose of the thickening tank is to reduce the amount of solution which must be fed through the next set of leaching tanks. The thicker mud from the bottom of the tank is pumped into a series of four leaching tanks, where it remains for about four hours. Leaching is a process in which the gold is dissolved from the particles of ore into solution (the gold combines with the cyanide in solution).

The thinner solution from the top of the thickening tank bypasses that set of four leaching tanks. The solution from the leaching tanks and the clear solution from the top of the thickening tank are fed into a series of five tanks full of activated carbon particles.

The carbon absorbs the gold from the solution, and it is removed from the tanks daily. Then the gold is removed from the carbon via another leaching process.

This time, the leaching solution is heated to 200 degrees Fahrenheit to force the gold off the carbon. The solution is composed of cyanide and caustic soda.

The whole process results in a small stream of high grade solution. This solution is put in a small tank in which the gold electrochemically reacts with bundles of steel wool immersed in the solution. The result is gold-plated steel wool.

The steel and gold are removed from the tank and put in a furnace along with several fluxes. The fluxes react with the iron in the steel wool, which then floats to the top of the heated furnace cup and is poured off.

The gold collects at the bottom of the furnace and is gathered in pieces. When a certain amount of gold has been collected after these processes (about 1,000 ounces in the case of the first brick molded) it is remelted and molded into a brick.

When the operation is running at full capacity, the mill should process 1,000 tons of ore per day. Assuming current richness, about 150 ounces of gold would be produced each day of full production.

—**Humboldt SUN**

MINE OK'D IN DEATH VALLEY

Trona, Calif.—The National Park Service has approved a plan of operations for the Bullfrog Mine in Death Valley National Monument, according to Superintendent George Von der Lippe.

"Before the plan of operations for E. R. Fegert, Inc.'s Bullfrog Mine was approved by Howard H. Chapman, Regional Director of the National Park Service Western Region," Von der Lippe explained, "a thorough review of the plan was made by park mining engineers and resource management specialists."

—**Trona ARGONAUT**

ICE PERIOD MAY BE COMING, BUT DON'T BUY MITTENS YET

Bisbee, Ariz.—Earth's current warm period is ending and a new ice age that could last 114,000 years is coming, according to scientists who have developed a new model of the planet's climate based on astronomy. However, there is no cause for alarm, as the next cold peak is not expected for several thousand years.

The new model reinforces the idea — increasingly accepted among scientists — that changes in the Earth's orbit cause the advance and retreat of glaciers. It also offers an astronomical explanation for the brief but crucial warm spells that have punctuated the great ice ages of the last million years of Earth history.

There have been only four of these "interglacial" periods in the last 350,000 years, each lasting about 10,000 years. Human civilization sprang up in the latest one, which began about 9,000 B.C.

The climate model was developed by George Kukla and colleagues at Columbia University's Lamont-Doherty Geological Observatory, and by Belgian astronomer and mathematician Andre Berger of the Catholic University of Louvain. The Czech-born Kukla says the model is based only on natural causes and does not take man's influence on climate into account.

"We know the atmosphere is being loaded with carbon dioxide and this could change the future climate completely," he says. Many scientists, for example, believe carbon dioxide from fossil fuels will cause a global warming.

—**Bisbee DAILY REVIEW**

TWO-STORY SIX-HOLER OUTHOUSE DECLARED HISTORICAL MONUMENT

Belle Plaine, Minn.—Until someone privy to such lofty information flushes out a challenger, the proud folks of Belle Plaine will go on boasting about the nation's only two-story outhouse.

Ordinary outhouses of lowly station draw more flies than attention. Belle Plaine's uncommon free-standing outhouse lures tourists and helped get the 109-year-old Hooper-Bowler Hillstrom House listed in the National Register of Historic Sites.

The Sam Bowlers, who occupied the house from 1886 to 1901, had 12 children. The Bowlers, as practical as they were prolific, designed the towering toilet so craftily that it could be used in unison by six people, three upstairs and three down.

The structure, about five by eight feet, is as high as the two-story house and stands four feet from the dwelling. There are doors at each level. An upstairs house door opens to a walkway. Residents didn't have to go downstairs to reach the toilet. A couple of steps across the walkway brought them to the outhouse's upper door. Wooden lattice-work, a fence of sorts, gave privacy and protected against falls to the ground.

Historical Society guides sometimes describe the outhouse as one of the world's great engineering marvels. They've been known to jest that the "secret" of the design is that downstairs patrons are provided with umbrellas.

In reality, the "secret" is much more complicated. The rear interior wall of the downstairs section isn't the back of the building. The upstairs seat bench, on the other hand, is located all the way back. A chute is formed by the building's back wall and the false wall behind the first-story accommodations.

Sanford Hooper built the home in 1871. Bowler, a banker and owner of some gold mines, was the second owner. Flour miller Andrew Hillstrom followed, and his bachelor son, Fred, was the last occupant, living alone in the house for 15 years.

—*Desert* **News Service**

JIM SPICER AND HIS "BOILING POT OUTFIT"

by Wayne Winters

Beatty, Nev.—There's a gold and silver rush on these days that's not so terribly different than that of 125 years ago. It's complete with claim staking, claim jumping, prospectors, miners, big outfits, the individual single-jackass tramp of mountain and desert, riches to be gained and hopes to be lost. There's even battle, murder and sudden death in lonely areas of the west—tough, hard men and women seeking wealth in much the same manner as did their forefathers who wrote their own laws.

This is the stuff that Hollywood turns into make-believe for those who are content to sit at home. There are, though, a few rugged individualists who are actually living the life of old, pitting brains, brawn, guts and money on the off-chance they'll hit it big in the current precious metals boom. These lines will acquaint the reader with one such man. Jim Spicer is his name, controversy his fame, mining and ranching his game.

Jim Spicer came a kickin' and cussin' onto this tired old sphere half a hundred or so years ago, back in Virginia. He didn't stay around the eastern country long, but was raised in Pennsylvania, then Wyoming, where he learned to fork a bronc and chip away at a piece of mineralized outcropping rock with equal dexterity. Wandering southwesternly, he discovered Nevada in the mid-1940s, fell in love with the dry, high desert, and has now, as he says, "been in and out of Nye County for 35 years."

Spicer got his start in mining at Panamint Springs in Death Valley when Shotgun Mary Thompson hired him in 1946 to do assessment work, and he went on to mining in the Cottonwood Canyon area around Bishop, California. Later, he and Charlie Steen of uranium fame were partners on some early ventures along Bush Creek in California's Deep Springs Valley, but the ecologists began pushing, so Spicer decided that California and doing battle with both state and federal bureaucrats weren't worth the hassle. He moved back to his beloved Nevada, took a good long look at the Beatty country, saw what he considered to be lots of potential for mining and ranching, and set about putting together what is called today the Boiling Pot Outfit. It was there that he met and married the delightful and attractive Effie, and together they began building.

What an operation they've come up with. Records of old mining production were researched. Land geologists were hired to prospect, map and pinpoint occurrences of precious metals—notably gold and silver. Then came the surveyors and the staking crews. Soon Spicer Mining Company (Boiling Pot's official name) had a major holding of patented and unpatented claims, most of which are in the Bullfrog District. Today the firm holds approximately 36 square miles of mineral lands and in 1980 spent $96,000 in assessment work alone in the Beatty area.

In times gone by, when ambitious westerners reached out for land and power, they were met with opposition from others—people who either desired the same property, or those who were jealous that they had neither the brains, brawn or determination to acquire and build. Spicer learned that this situation still holds true: the Boiling Pot Outfit has been forced to battle tooth and claw to gain the envious position it holds today in Nye County.

As political circumstances dictated, Spicer became active in state and county politics. As he puts it, "We fought — and still fight—for a way of life and our very self-preservation." A basic constitutionalist, Jim says he believes his kind are unpopular and hated in Nye County because they insist on having the rights granted every American under the United States Constitution. He says he believes that many other residents of the area accept the status quo in county politics because of fear or complacency.



Jim Spicer, the Boiling Pot's boss, has been described as controversial and cantankerous. Actually, he is the latter only when politicians harass him and his hard-working crew.

From the beginning of his exploration and claim staking program, Spicer has had a continual problem with the environmental interests. He insists that he understands and shares their concern for the wise use of our public lands. Like them, he wants to see the surface of the country disturbed as little as possible. At the same time, he believes that the extraction of minerals contained in these lands must be pursued. According to Jim, no mining company is going to tear up the country just for the hell of it. He points out that not only does it cost a great deal of money to make excavations, move dirt and rock and erect plants to recover the minerals held in these mountains and deserts, but that all civilization as we know it depends on mining. "You can either have mining, or you can go back to the stone age," says the man from the Boiling Pot.

The Las Vegas office of the United States Environmental Protection Agency received the following anonymous letter February 7, 1980:

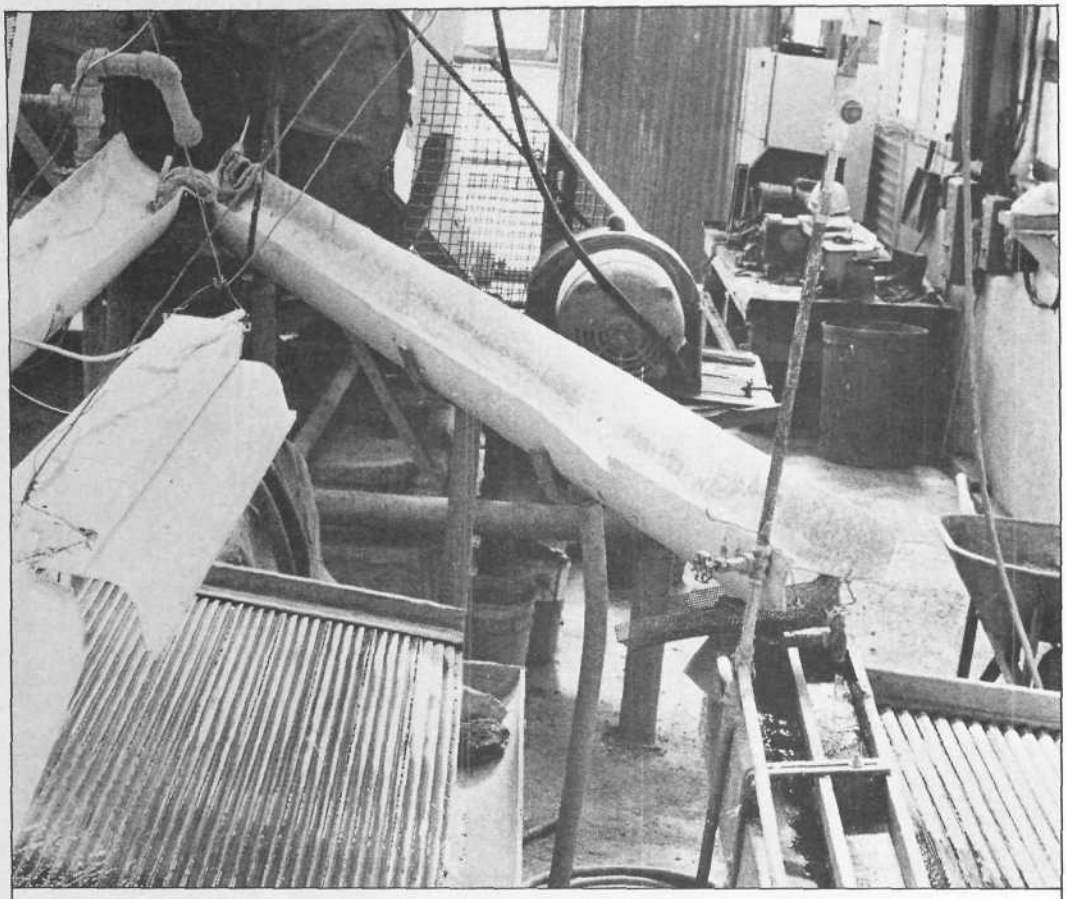
Dear Sir:

May I request that you investigate a mining-type mill being constructed by Jim Spicer, who resides approximately nine miles north of Beatty, just off Highway 95. His ranch is known as the Boiling Pot Outfit.

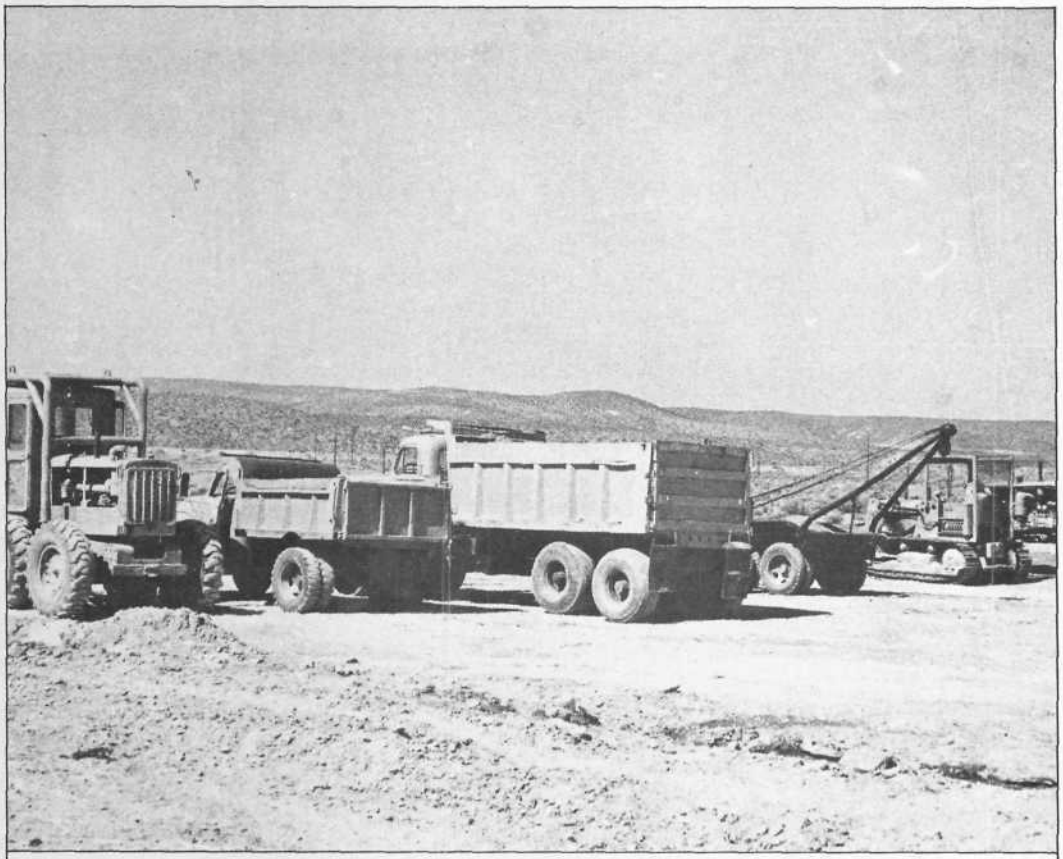
In addition to the mill, Spicer is building a cyanide leaching pond on a slope above the Amargosa waterway, in such a position that heavy rains could wash cyanide into the waterway. It should be noted that the entire area was completely inundated during the flood of 1969.

If you decide to investigate this, you should be warned that Spicer carries a concealed weapon at all times—usually a pistol in his boot. He is also surrounded by a group of young male employees of dubious reputation.

I regret that I cannot sign this, since Spicer has a criminal record



Spicer's Boiling Pot Outfit is more than just some active claims. It includes a plant to process ore and offices to house his industrial supply and cattle businesses.



A long road away from single-jackass days, the Boiling Pot Outfit has a multi-thousand dollar investment in special-purpose vehicles, a part of which are shown here.

for assault, and is also suspected of several incidents of arson in this vicinity.

P.S. Isn't it also necessary to have an environmental impact statement filed for mining projects which irreparably damage the environment and cause potential damage to county roads? Spicer has started a screening plant across Highway 95, west, from the Boiling Pot.

An interesting followup to the above letter is that it caused federal officials to fly over and photograph the area involved. Their picture showed a yellow-colored substance over a wide area of flat land between the mill and the Amargosa waterway, with a number of small dark dots on the edges of the yellow material. Environmental Protection Agency representatives then moved in on the Spicer property, demanding to know what the yellow stuff and the dots were. Jim and Effie pointed out that what their photo showed was a lot of hay spread over a pasture, and that the spots were cattle eating the feed. Red-faced, the feds took their leave.

This writer has known the Spicers for several years. He's had the good fortune to observe a group of hard-working people come up with a lot of mining property that will, in all probability, make multi-millionaires of all of them. There's no doubt that Jim Spicer can be—and probably has been—abrasive when rubbed the wrong way. He's a rugged individualist, backed up by a wife who is his match.

That's nothing new for a man who locates and seeks to hold mining claims according to law. I've been acquainted with more than a few claimholders who have, upon occasion, defended their holdings against claim-jumpers and their ilk with fists, firearms or perhaps a slippery elm club. Buck Wilcoxson and Johnny Gossett over Grants way, Harry Crowder down at Arivaca and even Don Pelon in Tombstone, Grants and Smugglers' Gulch have, to name a few. Their company is not downgraded by the inclusion of Jim Spicer or his "group of young male employees of dubious reputation."

—Western PROSPECTOR & MINER

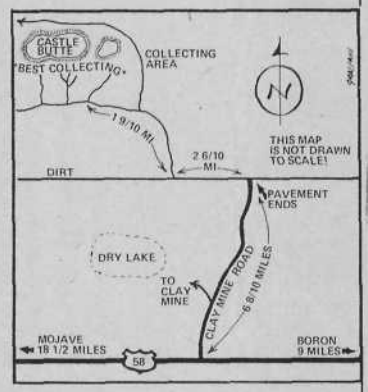
THE DESERT ROCKHOUND



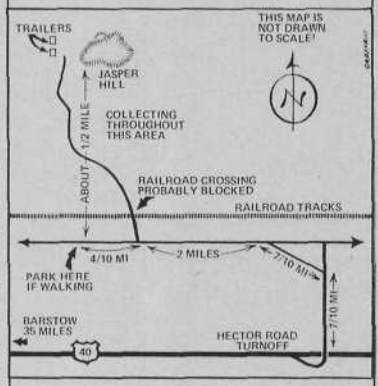
by RICK MITCHELL

Collecting Sites: Agate, jasper, petrified palm, common opal, petrified wood and bloodstone can be found near Castle Butte, just nine miles west of Boron, California. The prime collecting site is at the base of this prominent, easily seen landmark. Take Highway 58 to Clay Mine Road, then proceed north to the pavement's end. Turn left and continue another 2.6 miles; turn right and bear toward Castle Butte, about two miles further.

As soon as you begin this final leg of the journey, it is possible to find nice cutting materials at nearly any place you might stop. The concentration, of course, isn't as great as at the prime collecting area, Castle Butte, but nice specimens can be found. Scour the foothills for the agate, jasper, opal and petrified wood. They are everywhere, with some of the agate occuring in large boulders, often too heavy to carry. The bloodstone is not as plentiful, but there is some available to the diligent rockhound. In addition to the nice cutting materials, this elevated collecting site affords a spectacular view of the valley below, including Edwards Air Force Base. At night, the lights of Edwards produce a magnificent spectacle, being just one more reason why Castle Butte is a favorite among rockhounds throughout the southwest.



About 35 miles east of Barstow, California, just north of Interstate 40, lies a hill literally covered with jasper. Additionally, the area in the immediate vicinity of this hill is littered with agate, chalcedony and more of the jasper. Most of the agate is clear with black, brown and red patterns. There is also some good moss agate available. The jasper is a brilliant gold, often containing areas of red, black, brown, blue and white. The hill, though, is the prize, with jasper everywhere you step. It is the type of place rockhounds dream about, but seldom find. Brilliantly colored gold and yellow jasper, in an amazing variety of colorful patterns, is plentiful.

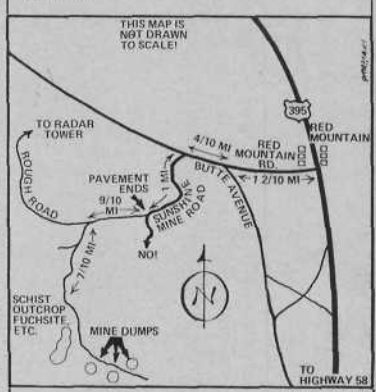


To get to this most prolific area, take Interstate 40 to the Hector Road turnoff and head north 1.4 miles, bearing to the left. At this point you will be at the railroad tracks, and should continue west another 2.4 miles on the road that parallels them. You must walk from there, because the railroad crossing is now closed. The hike is only about one-half mile, and the soil, as mentioned before, is littered with collectables. The hill, which has a slight orange tint, can be seen from where you must park. Also, there are two old trailers parked near it. Be selective for the material is plentiful. If you don't wish to hike all the way to the hill itself, you will find plenty of specimens only a short distance north of the railroad tracks. I suggest this trek for the fall, winter or spring, because of the intense summer heat in the area.

Excellent mineral specimens can be found near Red Mountain, California. This community has long been known as one of Southern California's leading mining regions, but few rockhounds know that it is also a place where they can obtain some unusual and rare minerals. Among these is a green variety of muscovite, called fuchsite. The vivid green color, caused by the rich chromium content, results in spectacular specimens. To reach the collecting area, take Highway 395 to Red Mountain, and then follow the instructions on the map below.

The road is rough in places, so it's best to use a four-wheel drive vehicle. As you approach the given mileage, a small schist outcrop will be seen to the right, and it is in this outcrop that the brilliantly colored fuchsite can be found. Olive-green actinolite can also be located in the area, being concentrated near the road passing the mine dumps. The actinolite makes a very nice specimen, with its mass of needle-like crystals.

There are other outcrops nearby, as well as some productive mine dumps. At these additional sites, the collector can also find zoisite crystals, epidote, quartz, talc, sericite, calcite and even some rhodonite. There isn't much in the way of cutting material, with the exception of the scarce rhodonite, but it is an outstanding place to obtain specimens of some very showy and uncommon minerals. Warning: Many of the mines are *not* abandoned, and no tresspassing is allowed.



Museums: The Arizona-Sonora Desert Museum, near Tucson, is in the process of completing Phase II of its Earth Sciences Center. Included in this exhibit are a number of outstanding displays showing the geology and history of the southwest, with special emphasis on the Sonoran desert. Numerous rocks, minerals and fossils are displayed as representative of various geological periods in the evolution of the earth. There also is a special series of exhibits illustrating the formation of Arizona's copper deposits. Completion of Phase II will be this fall, but its development can be seen anytime while visiting the completed portions of this internationally known natural history museum.

New Equipment: Paul H. Gesswein & Company, Inc., is offering what some regard as the finest jeweler's tweezers on the market. They are six and one-half inches long, black in color and have serrated ends, so stones can be gripped better. These revolutionary new tweezers are constructed of a very flexible steel, allowing them to securely pick up even the tiniest of gems. For more information, contact Gesswein at 255 Hancock Avenue, Bridgeport, CT 06605.

Helpful Hints: Have you ever had trouble with undercutting while working plume agate? If so, the problem can often be remedied by reducing the speed of your sanding and polishing operations. The plumes are composed of a softer material than the host agate and sand more quickly, thereby causing the undercutting. If you can reduce the speed to about one-half the normal, this problem should be eliminated. In addition, I suggest you use cerium oxide on a leather wheel for the final polish, attempting to avoid excess heat.

If you have had trouble with softer materials sticking to your polishing wheel, this can sometimes be solved by dipping the stones in vinegar instead of water.

DESERT CALENDAR

Listing for Calendar must be received at least three months prior to the event. There is no charge for this service.

May 16-Aug. 2: A photographic exhibit capturing the delicacy of the tiniest desert wildflowers opens May 16 at the Natural History Museum in Balboa Park, San Diego, California. The exhibit will feature photographs by Robert I. Gilbreath, which were taken in the deserts of the western U.S. and Mexico. For further information, call (714) 232-3821.

June 3-Sept. 8: The Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, Illinois, has an exhibit on the Hopi Indian. It celebrates America's oldest continuously surviving culture, and features large scale models of Hopi religious ceremonies, hundreds of kachinas and a hall filled with candid photographs taken by Joseph Mora. Shortly after these photographs were taken, cameras were banned from Hopi public dances, and are still banned today. For further information, contact Barbara Lanctot at (312) 322-8859.

June 27-28: In Ventura, CA, there will be a spectacular Flower and Plant Sale, with many varieties of plants being exhibited and sold. It will be held in the Agriculture Building at the Ventura County Fairgrounds. The show will be judged; admission is $1, with children under 12 free. Hours are: Saturday and Sunday, 10 a.m. to 5 p.m.

June 27-28: The San Bernardino County Historical Bottle and Collectibles Club is having its 13th annual show and sale at the San Bernardino County Fairgrounds in Victorville, CA. The show will feature a variety of antique bottles, fruit jars, glass and related collectibles. Hours are: Saturday, 9 a.m. to 5 p.m.; Sunday, 9 a.m. to 4 p.m. Admission is $1. For more information, contact Gene Kemble, 14733 Poplar, Hesperia, CA 92345 or call (714) 244-5863.

July 4-5: The 10th Annual Butterfield Trail Days will be held in Deming, New Mexico. Events include a parade, fiddlers' contest, art show, trading post, flea market and a barbecue hosted by costumed villagers. For further information, contact the Deming Chamber of Commerce at (505) 546-2674.

July 9-12: El Paso, Texas is celebrating its 400th birthday month in a big way. One of the main events is the El Paso Street Festival, which begins with ceremonies on the 9th at 7 p.m. and continues with exhibits, entertainment and nightly festivities through the 12th. Most of the festivities will be held at the Civic Center, starting at noon every day. For further information and a list of nightly entertainment, contact the El Paso Art Resources Department at (915) 543-6328.

July 14: The Laguna Beach (California) Summer Arts Festival will be holding its annual Art-A-Fair on Canyon Acres Road. There will be fine art exhibits for friend, follower and tourist alike. Contact Don Markowitz, Publicity, P.O. Box 547, Laguna Beach, CA 92652.

July 18-19: The Santa Cruz Mineral and Gem Society, Inc. presents their 29th Annual Gem and Mineral Show. The theme for the show is "Treasures of the Earth." It will be held at the Civic Auditorium, located at Church and Center Streets, on July 18th from 9:30 a.m. to 6 p.m. and on July 19th from 10 a.m. to 5 p.m. There will be dealers, door prizes, exhibits, demonstrations and on Saturday, an oldtimer's potluck. Admission is a $1.00 donation. Contact Ken Wilson, 4453 Ranchero Dr., Soquel, CA 95073, or call (408) 476-2850.

July 25-26: In Santa Fe, New Mexico, the 30th Annual Spanish Market. More than 30 artisans display such crafts as colcha embroidery, bultos, retablos, furniture and filagree jewelry. Admission is free. Hours are 10 a.m. to 5 p.m. For further information, call (505) 827-2544.

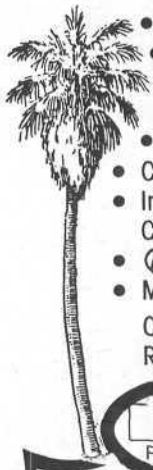
July 28-29: 25th Annual Puye Cliffs Ceremonial. A variety of dance by Nambe, San Ildefonso and Santa Clara Pueblo Indians in ancestral cliff dwelling ruins above Rio Grande Gorge. Food booths, arts and crafts will be featured. Admission is $2 with a $5 photo fee. Hours are 11 a.m. to 4 p.m. The ceremonial is being held 13 miles west of the Santa Clara Pueblo, which is located between Espanola and Santa Fe, New Mexico. Contact the Espanola Chamber of Commerce at (505) 753-2831.

July 31, Aug. 1, 3-8: The Festival of the American West in Logan, Utah. Most of the events will be at Utah State University's Spectrum, a massive special events center. There will be an historical pageant each evening at 8. Admission is $5 for adults and $3 for children under 12. From 2 p.m. until 9 p.m. daily, the Great West Fair will be held on Spectrum Field. This is a recreation of pioneer life, with continuous entertainment, numerous exhibits and many samples of the way the west was—in art, cooking, crafts and day-to-day living. Admission for adults is $3.50; children 7-11, $2, under 7 are free. For more information, call (801) 750-1144 or 1145.

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Continued from page 29

growth which, if unchecked, immigration will turn into a human tidal wave, that the benefits achieved by our country from immigration in the past will not apply in the future, and that the *indocumentado*, the unregistered, unlicensed individual who stands on his own without benefit of welfare payments, is a scourge. The illegal alien simply responds to the market for his skills. He will leave when there is no demand for his services. There is no essential difference between Francisco Lopez from Mexico City who has come to the United States today and his predecessors of yesteryear—John Smith from London, Padraig O'Hara from Cork, Hans Muller from Tubingen, Isaac Greenberg from Lodz, Benito Fellini from Palermo—an endless throng who between them made America.

Perhaps we would do better to leave immigration to the operation of the free market, rather than relying on the designs, however well intended, of social planners and bureaucrats. (Ed. Note: Dr. Gann is a senior fellow, the Hoover Institute, Stanford University.)

—Elko INDEPENDENT

OWENS LAKE SITE OF NEW SOLAR POND POWER PLANT

Los Angeles, Calif.—Construction of the nation's first solar salt-pond power plant to generate electricity for customers of the Los Angeles Department of Water and Power is contingent upon $2 million in state funding and successful studies of the project's Owens lake site, located 200 miles north of Los Angeles.

Development of the $2.75 million Owens Lake Solar Pond Power Plant will be a cooperative venture of the DWP, California State Lands Commission and Inyo County. The plant is designed to generate electricity using the sun's heat collected by a highly saline, 15-acre pond.

The plant will produce 1.12 million kilowatt hours annually of clean, renewable electricity for Los Angeles, and save burning about 1,760 barrels of oil annually.

The Owens Lake plant would use a salt-gradient solar pond to collect and store the sun's heat at the bottom of an 11.5-foot-deep pond. Solar energy stored in the heavier saline water at the pond bottom will reach 185 to 212 degrees before it is pumped to a heat exchanger, where it evaporates the working fluid, which is Freon. The pressurized vapor then flows through the turbine, turning the generator to produce enough power for more than 200 DWP residential customers. To complete the cycle, the vapor is cooled in a condenser using cool, fresh water from the pond surface.

Both the hot brine and cooling water are returned to the pond to complete the cycle. Between the cool water at the pond surface and the hot brine in the pond's depths is a non-convective layer of saline water which insulates the hot brine later from the cooler pond surface. Because of the massive heat retention capability of a solar pond, the plant will be able to operate during nights and cloudy days without loss of generation.

—*Desert* News Service

UTAH MINERS TO SUPPORT M-X

Fillmore, Utah—According to the Bureau of Land Management, there are between 30,000 and 40,000 mining claims located in the area of the proposed M-X System. These claims contain many strategic minerals needed by the United States.

The Utah Mining Association has warned Congress that provision must be made to make it possible to extract these minerals should the M-X System be built. The UMA also warns that amendments to the Clean Air Act to exclude dust from M-X construction projects could result in termination of any mineral development in the area.

At a Utah Mining Association meeting held in St. George recently, Air Force officials told members that the Air Force will avoid choosing areas with high mineral potential in locating sites for M-X silos in southwest Utah and eastern Nevada. Some silo sites will be deactivated, should minerals be found at those sites after the silos are built. The Utah Mining Association then passed a resolution to support the M-X Missile System.

—The Millard County GAZETTE

STUDEBAKER AUTOS HAD ROOTS IN OLD HANGTOWN

by Jack Reid

South Bend, Ind.—Studebaker was a household word for a century, famous at first for the manufacture of quality wagons and later for automobiles and trucks. The original seed money, which ultimately was parlayed into $500 million annual sales and a payroll of some 23,000 persons, was earned by John M. Studebaker in the Mother Lode between 1835 and 1858, but it wasn't made in mining.

John Studebaker made his money at what is now Placerville. At that time it was known as Hangtown, an appropriate description of its criminal justice system. Studebaker arrived there in 1853 and went to work at the H. L. Hinds blacksmith shop, but his real money came from moonlighting. In the evenings, after a full day's work, he made exceptionally well constructed wheelbarrows which he sold to the miners for $10 each.

By 1858, when the gold rush was definitely on the wane, "Wheelbarrow Johnny," as the miners called him, had saved $8,000. He took this money back to South Bend, bought out one of his brothers for $1,500 and used the rest to expand the family wagon business.

During the Civil War, the company was able to obtain some Union Army orders. From there, it was on its way. Sales totaled $233,000 by 1867 and more than one million eight years later. The Conestoga or "covered" wagon was the most famous of Studebaker's products.

The first automobile made by Studebaker was an electric in 1902. Gasoline car production started two years later. When John Studebaker died in 1917, the company, which had been incorporated in 1911, was just at the threshold of its best days. In 1923, it produced 146,000 automobiles. It manufactured a line of high-quality, medium-priced cars which were popular with commercial travelers, particularly in the midwest. During World War II, the corporation manufactured military vehicles and aircraft engines.

Studebaker was the first manufacturer to introduce a genuinely new model after World War II (1947), styled by the famed industrial designer, Raymond Loewy. However, the realities of post-war economics, which ultimately wiped out all of the United States independent car companies or forced them into unwelcome mergers, were to take their toll on Studebaker. Studebaker was actually the last independent, although it was merged with Packard at the time of its demise.

—The NEVADIAN

THE CLARION'S LAST CALL

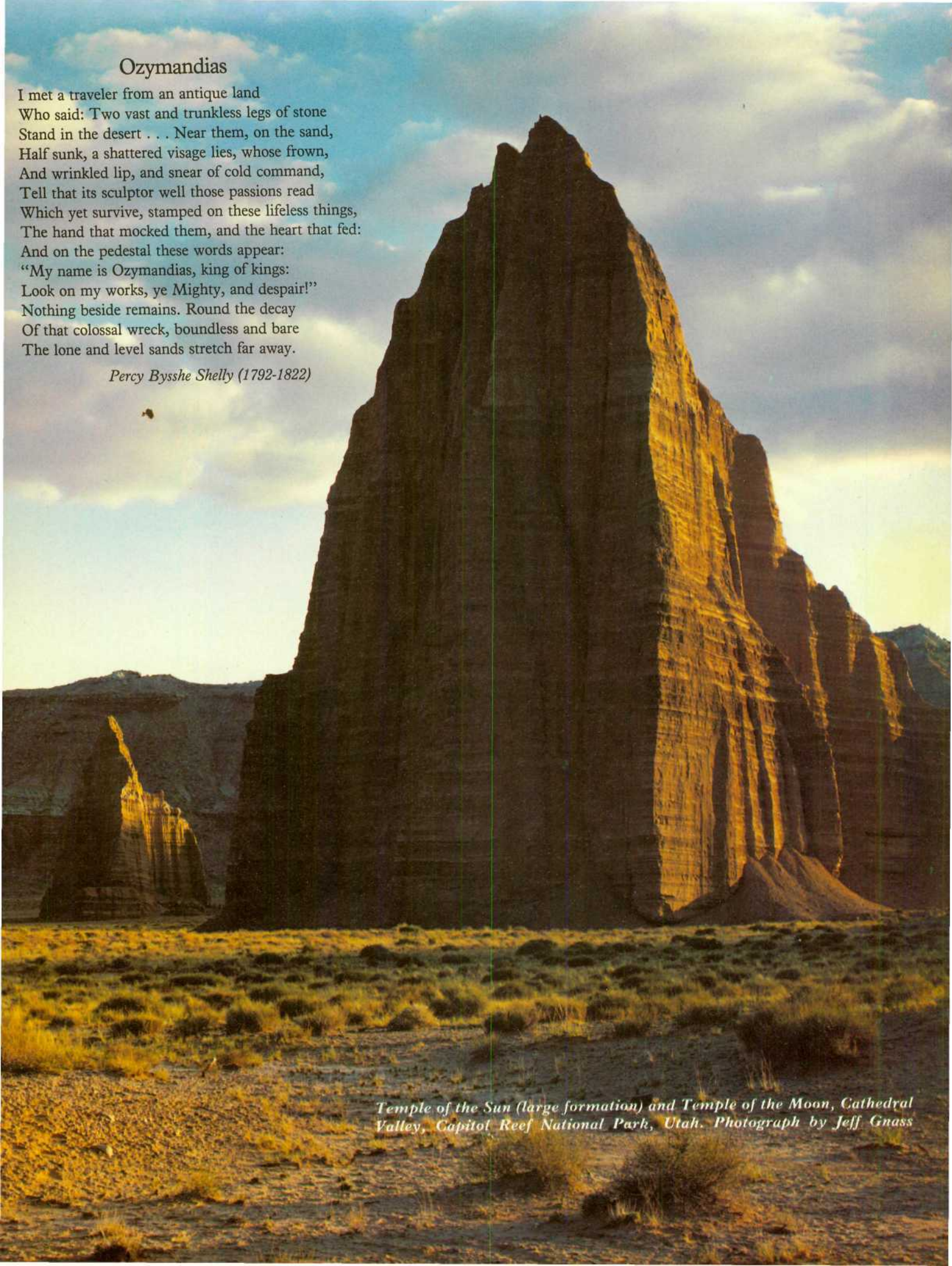
We are discontinuing the Clarion department of *Desert* with this issue. We will continue The Desert Rockhound and Desert Calendar. We are planning additional features and departments about the celebration of life on the desert.

—The Publisher

Ozymandias

I met a traveler from an antique land
Who said: Two vast and trunkless legs of stone
Stand in the desert . . . Near them, on the sand,
Half sunk, a shattered visage lies, whose frown,
And wrinkled lip, and snear of cold command,
Tell that its sculptor well those passions read
Which yet survive, stamped on these lifeless things,
The hand that mocked them, and the heart that fed:
And on the pedestal these words appear:
"My name is Ozymandias, king of kings:
Look on my works, ye Mighty, and despair!"
Nothing beside remains. Round the decay
Of that colossal wreck, boundless and bare
The lone and level sands stretch far away.

Percy Bysshe Shelly (1792-1822)



Temple of the Sun (large formation) and Temple of the Moon, Cathedral Valley, Capitol Reef National Park, Utah. Photograph by Jeff Gnass

A folk story emanates from a remote fishing village on the west coast of Baja California. The way it's told, a government supply ship runs aground, the crew is plucked from an angry sea by an unlikely multi-national rescue team, and its cargo of beer is recovered. Much of the beer is sold to finance a long-needed school for the poor village, with some saved for a party that attains legendary proportions. Grist for a Hollywood movie? Maybe, but as a folktale, it has two flaws: It's recent and it's true.



The Day 20,000 Cans of Tecate Washed Ashore

by Brian Wiersema
Photographs by Sam Young

PUNTA BAJA, the setting, is a peninsula and a lobster camp located some 200 miles south of Tijuana. The peninsula is wide and mountainous at the base. As it extends toward the sea, it grows narrow and drops abruptly to where the village sits on a flat, elevated headland a half-mile wide and a mile long. A shock to most American visitors, the stark village consists of a dozen two-room houses, each about 14 by 20 feet. Construction is tarpaper over framing. Floors are dirt or cement. Door hinges are of tire tread. There is no running water or electricity, no gas station, no restaurant, no store, and, until recently, no schoolhouse.

An average Punta Baja family has three children, only one of which is of school age, parents are in their late twenties and nearly every adult is the son or daughter of mainland Mexico peasants. Each has emigrated to Baja in the last decade, seeking to break a culture of poverty. As a group, they are durable and resourceful, but not hard. The men make their living diving for sea urchin, trapping lobster and harvesting seaweed and mussels from the peninsula's rocks. The women take care of the men and the children.

Punta Baja was a seasonally occupied fish camp before the late 1973 opening of the paved, two-lane transpeninsula highway that now runs through nearby El Rosario. The road opened new fishing markets, making year-around living at the camp possible.

The weather at the point is as unpredictable as the windward side is dangerous. A prevailing northwesterly wind blows from March to October; more than half the time it prevents villagers from working at sea in their open 18-foot skiffs. When big surf combines with high tide, the villagers even avoid the rocky shoreline. They know it only takes one wave to sweep them into a churning ocean and onto the jagged, mussel-covered rocks.

After rescue and salvage: Above from left, Orville Hovdey, his stepdaughter Cheryl Harris, three unidentified crew members, and Nolberto Alvarado.

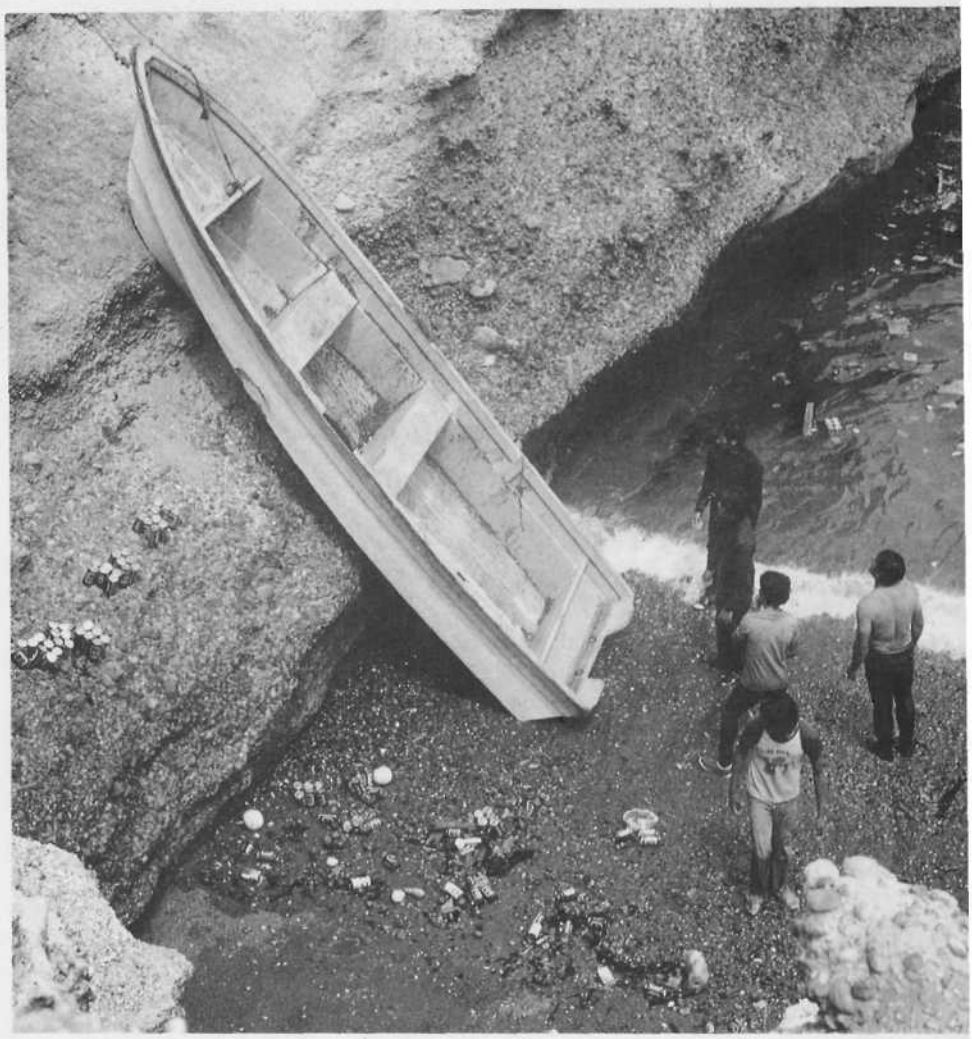


Destiny flung the Mexican government supply ship,* Noroeste, *onto the rocks off Punta Baja, but her salvaged cargo of beer built a school.

The story of the ship and the beer and the rescue and the cargo that bought a school begins with the arrival of a group of North Americans at the point on June 23, 1978. All from San Diego, they had come to deliver a memorial gift of food and clothing in the name of Edward Hovdey, 25, who had died in a traffic accident. The Hovdey family had hunted and fished the Punta Baja area for years and had been befriended by the villagers. The memorial contribution was the North Americans' way of saying "thanks" to the villagers and a final goodbye to Edward Hovdey.

The weather at the point is as unpredictable as the windward side is dangerous.

Upon arrival, the visitors made camp and then walked to the block house of



The* Noreste's *lifeboat, not used in the rescue, was washed ashore three coves beyond and sold. The proceeds were added to the school fund.

Nolberto "Beto" Alvarado, the village's mayor. There, Orvil Hovdey, Edward's father and a San Diego real estate broker, presented a letter to Alvarado explaining their mission. In part, it read:

"Only you and your family now can count the many visits you and Eduardo [Edward Hovdey] had together—the fishing and the other things you shared together that were happy events. He appreciated and was proud to eat at your family table and enjoy the food and drink that you provided.

"Nolberto, this is not meant as a charity donation to your people. The real meaning is that Eduardo would want to leave something of value with the people here so that they could enjoy it in the land that he loved. So we have come to deliver these provisions."

The North Americans came bearing their grief and their gifts, but they would come very close to forgetting both during the next 24 hours. One could call it fortune or fate; yet had not the Americans set up camp where they did at the tip of the peninsula, both the cargo and the six-man crew of the government supply ship *Noroeste* might have been lost.

As the Hovdey party huddled against the wind and slept in their sleeping bags, the 58-foot, steel-hull *Noroeste* moved toward Cedros Island from Ensenada with an assorted cargo of meat, cheese, vegetables, melons, oranges, 200 cases of Pepsi and, lashed above and below decks, 1,000 cases of Tecate beer. The ship was equipped with radios and a radio direction finder to assist in navigation; it was also too close to shore.

Shortly after 5 a.m. on the morning of the 24th, one of the North Americans awoke briefly and then tucked his head back into the warmth of the sleeping bag. A few minutes later, the *Noroeste*, several miles east of its course and shrouded in the dense fog, motored onto the submerged, flat rocks of Punta Baja. Blades from one of the twin propellers were sheared off and steering control was lost. The anchor was dropped to keep the ship from being driven further into the cove by an incoming tide, and then the crew set about the only option open to them—jettisoning the cargo in the hope that a lightened craft could survive in the surf until another boat could tow them to safety.

To the Rescue

At dawn, a sleepy former lifeguard in the Hovdey group was awakened by distant shouts through the fog. He looked up and around. The voices made the fog eerie. But, through the mist and vapor, the young man, then only 19, could see the ship in trouble and the agitation of her crew. David Harris, responding to his lifeguard experience and training, awoke his friend Dave McKay and they hurried to help.

The *Noroeste* had ripped a hole in her starboard side and had taken on water. As McKay ran to Alvarado's house for assistance, Harris put on his wetsuit, grabbed a line, and rushed to find a way down the cliff. The ship lay in five feet of water, resting on the rockshelf bottom. Though it was low tide, the surge of the ocean rocked her from side to side and waves crashed over her stern.

Fearing that the ocean would claim him before rescuers arrived, one of the crew took a line and tied one end to the ship, then jumped through the fog and into the tricky sea. It was rougher than he had expected and the force of the surf swept the rope from him. For a moment he foundered; then, giving wide berth to an ugly, mussel-covered rock, the crewman swam and paddled and battled his way into the cove and onto the shore. As he staggered up the narrow beach, he reached down for a Tecate beer among the melons and crates that had washed in. Turning back to the boat and its crew, he held up the can of beer as if to say, "I made it." Then he popped open the can's pull-top and drank deeply. He had failed to bring the line in, but he was very, very happy to be alive.

Each can represented not beer, but rather a piece of window or rafter or perhaps pages of a textbook.

Within minutes, Harris was in the water. He found it deceptively rough and cold. Nevertheless, he swam against the surge, a line tied to him. It took Harris several minutes to reach the ship, and when he arrived he found the crewmen clutching the port rail, their knuckles white.

Next, McKay entered the water and swam toward Harris and the *Noroeste.* As he made headway against the breakers, Alvarado and his two oldest sons secured a second line to shore and tied Harris' line to it.

Harris, now joined by McKay, coaxed the crew members into the water. One by one, they jumped in. Using the rope for guidance and support, they began to pull and kick themselves toward the cove. When one man hesitated, frozen with fear, Harris and McKay urged him on. The two strong-swimming Americans kept the five crewmen moving through the surfline. Hand over hand, each was shoved alternatively into the rope and away from it by waves and vicious riptide currents.

The Law of the Sea

Meanwhile, word of the ship and its endangered crew spread among the villagers, and as the two Americans herded the five men toward safety, a crowd gathered on the cliff. When the last crew member was in range of the beach in waist-deep water and the first two were already on the gravel-like beach, a joyful shout came from the onlookers. The victims had made it.

Harris and McKay, caught up in the adventure, rested only briefly. Followed by Alvarado's two sons, both also in wetsuits, the Americans swam back toward the ship. Once back at the crippled vessel, they pulled themselves aboard.

Harris found a machete and began to hack away at the ropes that tied down the cargo of beer. The abandoned cargo, according to maritime law, belonged to those who laid claim to it: the villagers. And Harris and McKay would assist as they had done with the crew. Case by case, the two Americans and Alvarado's sons tossed liberated beer into the sea and watched as the river of cans, held in packs of six by their plastic collars, floated into the cove.

As with the rescue, it was a race against the incoming tide. Within a short time waves would be breaking eight to 10 feet over the boat and much of the cove's beach would be under water. Time pressed the villagers as they scurried to collect the beer. Several, dressed in black wetsuits, worked in the surf and cove, pushing the packs of beer to children on the beach. The children, acting like worker ants, gathered the beer in their arms and in buckets and took it to men who loaded baskets to be hauled up the face of the cliff. As they worked, other villagers descended into the coves to the north to collect cans which had drifted into them.

It went unsaid that the beer collected would go into the fund to build a school, but each villager worked as if he knew. Each can represented not beer, then, but rather a piece of window or rafter or perhaps pages of a textbook.

With the villagers scrambling, two of the Americans, Sam Young and Cheryl Harris, invited the crew members to their makeshift camp. A fire was built and dry clothes—taken from the memorial supply—and a breakfast of coffee and scrambled eggs were given the crew.

For five, long, arduous hours, the Mexicans plucked cans from the beaches and from the 57-degree water and hauled them up the cliff. In all, 20,000 cans of the red-label Tecate beer were recovered. Including the *Noroeste's* lifeboat that had been found on a beach three coves to the northward, the salvage would bring about 88,000 pesos, or about $4,000—more than enough for the school.

Then the Party

Hovdey recalls:

"Everyone worked themselves half to death getting that stuff put in baskets and hauled up the cliff, but it couldn't have been better under the circumstances. It was kind of like an ongoing festival and it proved a good way to deal with our sadness. No, there wasn't much beer drinking going on. Everyone was working hard, being happy, laughing; it seemed like it was all part of what was meant to be. My son would not have wanted it differently."

By 2 p.m., the task was completed. As the beer and the memorial donation of food and clothing were being stored, the high tide battered the helpless *Noroeste.* Waves broke over and buried the ship.

The crew members were taken to El Rosario over a 10-mile-long, new dirt road, and from there they were taken by truck back to Ensenada where there was another ship waiting to take them to Cedros Island.

That night, the Alvarado family and the Hovdey party enjoyed a banquet of their own making that included a giant salad of fresh fruit from the wrecked ship. The North Americans left the next day, with a case of Tecate beer in tow.

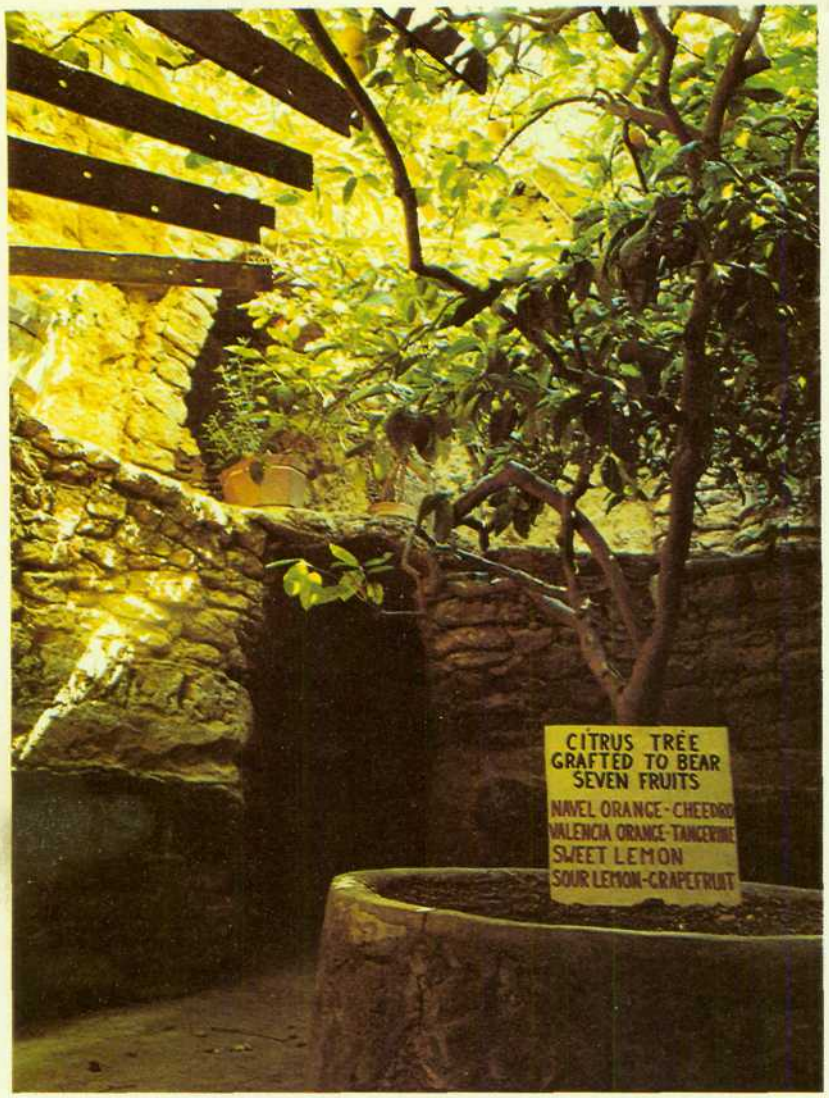
What happened next is not precisely known, but one source in El Rosario claims:

"The whole bunch of them at Punta Baja were drunk for a week. They salvaged nearly 1,000 cases of beer from that ship and then they brought it into town here and were selling it all over the place. But after a couple of days nobody could even drive into town."

Sources at Punta Baja do not deny this account, but they offer no details nor explanation. About all that is clear is that after the Americans left, the villagers did take the beer into El Rosario and peddled it at cut-rate prices from the backs of old pickup trucks. At some point, a halt was called to the sales, and the Mexicans relaxed the self-discipline they had imposed. A celebration of sorts ensued, restrained enough so that beer was available at Punta Baja two months later. Still, the entire episode is legend today.

In the spring of 1979, after the rainy season and after the lobsters had been harvested, three of the villagers drove to Ensenada and bought the plywood and tarpaper and framing needed for the school. Within a month, they had constructed their own cement-floor, 29-by-15-foot schoolhouse.

In the fall, it was named for and dedicated to the memory of Eduardo Hovdey.



Baldasare demonstrated Mediterranean expertise in causing plants to do his bidding.

A Legacy Greater than Dollars

Forestiere's Underground Gardens

by Hal Hill
Photographs by Roy Simpson

IT'S MID-SUMMER, 1981, in California's San Joaquin Valley. The mercury bubbles past fever level, swamp coolers drone impotently and refrigeration compressors implode in 110-degree heat. Except for the conveniences, it was the same in 1909, when a young Sicilian immigrant named Baldasare Forestiere left his job digging subways for the city of New York and moved to Fresno, California, agricultural hub of the fabled "Big Valley."

An older brother, Anthony, had already settled in Fresno and purchased 20 acres of land. Soon enough, Baldasare found a 70-acre plot that parted him with his savings. His intention was to raise the citrus that had made his father a prosperous grower and merchant in his native country, to plant an orchard that would eventually bear the long green of the American dream.

He began to dig into the new land, but each time his spade creased the fertile topsoil it seemed to find a rock. Like some malign divining rod, the implement jabbed the earth repeatedly, only to come to a knee-jarring halt one or two feet beneath the surface. The sprout-ripe land was underlaid with hardpan, a broken layer of sedimentary rock that skulks just below the surface in parts of the valley.

Eventually, he would blast away areas of the foot-thick shale to make room for some trees, and the immediate grounds would be planted with shallow-rooted shrubs and perennials, but Baldasare realized it would take more dynamite than good sense to transmute his rigid acreage into a prosperous orchard. Stagnant eddies of July heat dulled everything but the painfully temperate memory of his Mediterranean homeland, and he decided that if he was to work the land at all he would dig a cellar, like the wine cellars of his father and friends in Sicily, to allow him to regroup after his scorching bouts with the summer sun.

First he dug an adjoining pair of cellars shaped like inverted tea cups. Each had a base of roughly 10 feet and walls arching to a dome 10 to 12 feet above the floor. A round hole about three feet wide capped each dome, serving as a ground-level skylight. Then, for some unknowable reason he continued to dig, and an intensely practical concern became an enduring effort to carve a better hole. In the next 40 years he would indeed buy other

land and prosper, but the better part of the time would be spent deftly and doggedly wielding pick, shovel and wheelbarrow to sculpt a one-man wonder, a subterranean complex of grottos, open garden courts and tunnels eventually honeycombing the undersides of 10 acres.

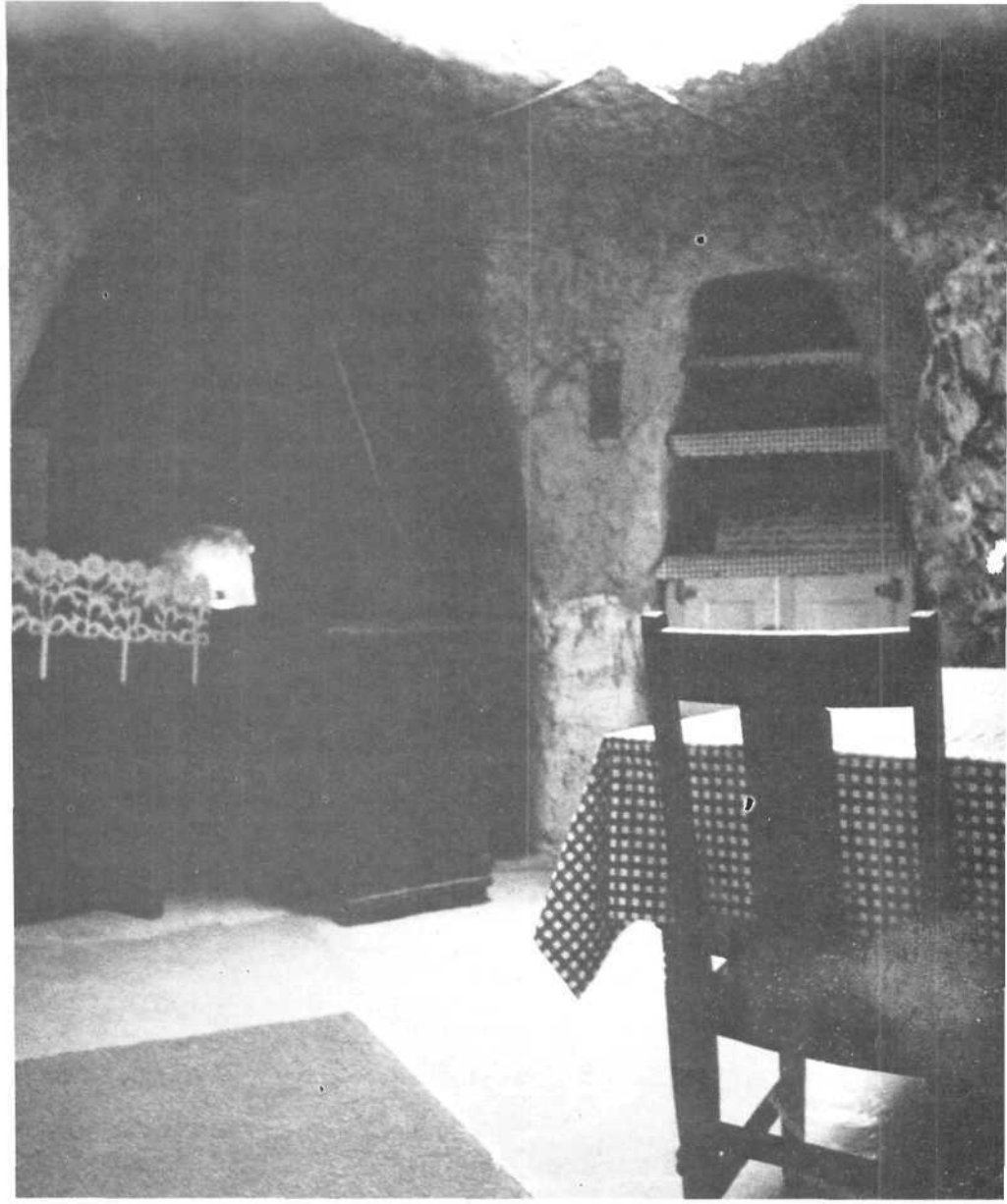
Forestiere's Underground Gardens are located on Shaw Avenue, just two blocks east off Highway 99 in Fresno. Today, a chainlink fence laced with pyracantha and climbing rose surrounds the 20-acre roof of Baldasare's creation. Weekends, starting at 11 a.m. and ending at 2 p.m., excepting times of foul weather, a gate in the thorny fence opens to allow the public onto grounds now shaded with pomegranate and citrus and carpeted with mint, veronica and rosemary. Once inside, you descend a partially open stairwell, shaded by an arbor that in summertime is cooly draped with the corkscrew tendrils and lime-green foliage of grapevines.

The stairway goes 13 feet below ground to a booth where an attendant collects $5 from adults, $3 from students and $2 from children. In an adjoining square chamber measuring 30 feet on a side, guests enjoy a brief talk on the history of the gardens and the life of the iconoclastic Sicilian who wrought them. A 25-pound chunk of hardpan is passed from chair to chair so surface dwellers can get the feel of the adamant shale with which Baldasare had to contend. Until 1976, a tour guide led the gatherings through the hand-tooled landscape, but today's customers are left to follow arrows that lead to the various rooms, all with signs telling of peculiarities and excellences. Most excavations are floored 10 to 13 feet below ground, and are rectangular or hive shaped with walls finished in combinations of chiseled hardpan, brick, cement and clay.

Early plans for an underground restaurant where patrons could elude the 100-plus degree heat above were never fully realized. Baldasare dug the cavernous space, a rectangle 35 feet wide, 100 feet long and nine feet deep, but died before the cafe could be established.

For his living quarters, Forestiere connected a kitchen, two bedrooms and a dining room, all facing an open garden and bath court.

The 30-foot wide sunken garden and bath court contains loquat trees, Italian pear, quince for jelly and a carob tree,



Owner's kitchen is where Baldasare, a gregarious man, entertained his many personal friends.

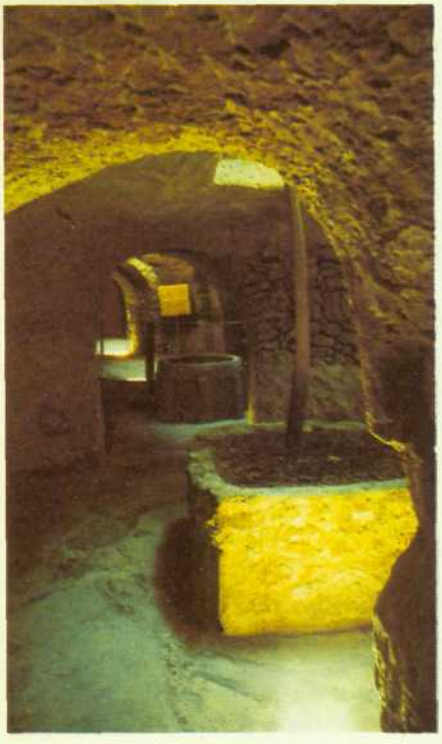
the fruit of which Forestiere used to concoct the chocolate-like confection popular among today's health advocates. A small alcove situated across the court from the master bedroom houses the bathtub. Dangling beside it is a rubber hose leading aboveground to a metal holding tank. Water in the tank was heated by the sun, then drained into the tub as needed.

The kitchen is a lateral half-section of the old-fashioned hive shape. The flat wall contains a fireplace. In the facing alcove, a dining booth and shelves are incised into the wall. Baldasare's kitchen design accommodated traditional Sicilian courtesy. The booth table could be slid into the wall and food quickly hidden behind curtains covering the inset shelves. "In this way," reads the sign, "if someone were coming to visit he would push the table into the wall, place his repast into the disappearing shelves; thus guests would not feel they had disturbed him."

Baldasare's bed was also cut from the earth, then fitted with conventional springs and mattress. Above the head of his bed he drilled a six-inch square shaft leading to the open-pit garden that bordered his sleeping quarters. The first daylight seeping down through the opening would awaken him to the world of contrast above, to the natural cycles of season and weather that are excluded from the calm of his underworld.

In another open court, a shoulder-high catwalk decorated with potted herbs and flowers allows the picker to gather seven types of fruit from a polyglot citrus tree planted in the center of the circular floor space. A native Sicilian lemon called *Cheedro,* which weighs up to seven pounds, may be harvested; also, skillfully grafted navel and Valencia oranges, sour





This 100-foot-long room (top photo) was intended to be a restaurant; Baldasare died before it could be established. Arches (above) were all hand-carved with an eye to the viewer.

lemons, tangerines and grapefruit grow on the same prolific tree.

From Baldasare's death in 1946 until 1969 the gardens were leased. Sensation-seeking promoters billed him as the "moleman," or "human mole." His medium had been too unusual, and the greedy impresarios couldn't see the art for the holes. Today, Rick Forestiere, Baldasare's nephew and chronicler, handles garden affairs with the help of his wife and sister-in-law. He proudly refers to his uncle's art as "terra sculpture," and with a quieter pride he remembers Baldasare's disgust when Japanese neighbors and friends were gathered for processing into the nisei internment camps after the United States had declared war on Japan. At that time Baldasare was preparing to become a citizen, but nephew Rick says that he balked and withdrew his papers, concluding that citizenship would make him an accomplice to what he regarded as a violation of human rights.

He never married. The father of his only intended didn't trust Baldasare's subterranean ways, nor did he care for his casual disregard for Sicilian rules of courtship. Forestiere had bent his knee to the lady before consulting papa, thereby committing a classic Old World infraction. However, before his romantic interlude had played out, Baldasare was inspired to hollow out a chapel, and although he was never to say "I do" there personally, countless newlyweds have since used it to exchange vows.

Baldasare Forestiere proceeded as any artist might: no blueprint, only the archetypal interplay between the visionary and the otherwise constant form of nature. His creation is, in a sense, decidedly earthy; yet tunnel and grotto walls emanate an ethereal harmony that visitors from everywhere respond to with empathy.

Until handled with maturity, the art of the gardens was obscured by its unusual form. Its energy-pinching utility, too, was lost in our seemingly endless sea of oil, but today an awakening chorus of environmentalists and energy watchers, including the architectural schools of the Massachusetts Institute of Technology and University of California, Berkeley, are wandering Baldasare's world and praising his better ideas that are, lamentably, just coming of age. He came west to make his fortune, but destiny dictated he sculpt the meandering piece of conceptual-environmental art we see today, under the field in Fresno, California. This legacy is greater than any amount of dollars.

Survival in a Thirsty Land

by Susan Durr Nix

WHEN IT comes to desert survival, man is no match for the lowliest ant or the scruffiest desert plant. Stranded in 120 degrees without water, he will die in one to two days, experiencing first agonizing thirst, then numbness, delerium and finally mummification from the outside in. Training and self discipline only prolong the inevitable; skin color, age and physical condition provide little or no advantage.

When it's hot, people sweat, and in sweating lose water that must be replaced almost immediately if they are to survive. Two-thirds of the human body by weight is water; losing a mere 10 percent of that causes derangement. Fifteen to 25 percent dehydration is the theoretical limit for man.

There's nothing like a mid-July day to underline our own marginal status as desert dwellers, and to call attention to more specialized and successful species. Thousands and thousands of years of desert life have given man neither camel-like storage equipment nor a kangaroo rat's water independence. We are not nocturnal animals, nor do we burrow, estivate or have adaptively high body temperatures. We cannot go dormant or reduce transpiration or draw on stored fluids, as many desert plants do.

Because plants seem to thrive in the dryest lands, we tend to make light of their water requirements. Since they don't get water, we assume they don't need it, but plants must have water to live and grow. They need it to absorb food from the soil as well as for photosynthesis, which transforms light energy from the sun into chemical energy for growth. This crucial process begins with the action of light on water. The bizarre shapes and odd growth cycles of many desert plants are mute testimony to water needs as great or greater than our own.

During the gradual changes in climate and habitat that altered plant arrearance and chemistry to resist thirst, many evolved smaller leaves, thinner, harder stems and deeply probing root systems. Cacti and other succulents went in the opposite direction, evolving larger, thicker and fleshier parts to act as water storage spaces. These juicy plants are among the most interesting in the world: They can endure temperatures 28 to 36 degrees Fahrenheit above the limit of other plants, and have a photosynthetic cycle that is fundamentally different.

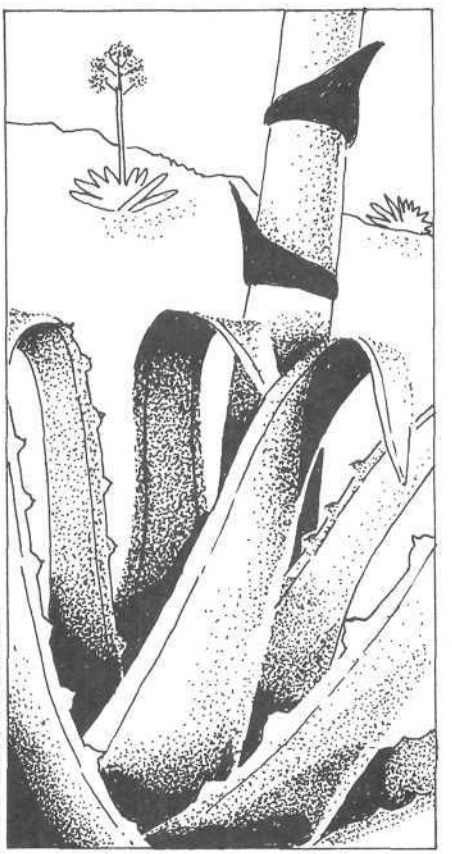


ILLUSTRATION: GITTA PFAHL

When the agave is ready to bloom, a great asparagus-like stalk races skyward at a rate of up to one foot a day.

Usually, plants photosynthesize during the day, opening pores, or stomata, to absorb necessary carbon dioxide and to release oxygen back into the air. Water vapor normally escapes at the same time, potential suicide for plants that must hoard every drop. Succulents solve this problem by opening stomata only at night, when the danger of evaporation is lowest. This unique strategy works because they have evolved a way to extract and hold carbon dioxide until daylight. It is then that photosynthesis can be completed.

In these respects, the century plant or agave is a typical succulent, and a striking member of the native American desert plant community. Its thick, sword-like evergreen leaves radiate from a very short central stem in a rosette pattern which may be compact, like an artichoke, or considerably more open. The leaves are usually saw-edged with stout prickles, and taper to a viciously sharp spine. Century plants range in size from the tiny *Agave pumila* in a three-inch pot to the two-ton giant, *Agave atrovirens,* with leaves some 15 feet long and one foot wide.

Regardless of size, the agave is designed to absorb maximum water quickly during the infrequent desert rainstorms, but to minimize its loss over the long dry haul. Because of the rosette shape of the plant, the leaves shade one another and present the greatest photosynthesizing surface in the least space. The stiff leaves resist excessive movement, a source of evaporation, while a tough, often shiny, waterproof coating reflects light and keeps moisture in.

Shallow fibrous roots radiate around the plant. They cluster densely near the base, where water traveling down the smooth, erect leaves tends to collect, and where droplets of moisture from leaf margins fall. Even the sharp spines seem to help; they provide points upon which night dew can condense.

Variously known as maguey, mescal, lechuguilla and amole, the agave is native in the southwestern United States, through Mexico and into northern South America. ("Century plant" is a misnomer. It doesn't really take the agave 100 years to bloom, although it may seem that long to an impatient grower). The periodic drought conditions throughout their range impose slow growth which ends, seven to 75 years later, in a spectacular burst of reproductive blossom.

The trigger is poorly understood, but the result is one of the special delights of spring and summer on the desert. The inner leaves part, and within a few days a great asparagus-like stalk begins racing skyward at a rate of up to one

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foot a day until, 40 feet high in the larger species, it explodes in large clusters of nectar-filled flowers. The triumph is short lived: within a few weeks the flowers, the stalk and the plant itself are dead.

Why does the agave sacrifice itself this way? To produce some 65,000 seeds, most of which will never even germinate, let alone grow. Rodents carry off about 85 percent of the seeds; the other 15 percent must find the right combination of soil and unusually abundant rain to take root. Even then, they may be eaten by a variety of animals or succumb to the next period of drought. Even though an *Agave deserti* seedling can lose almost 80 percent of its water—eight times our limit—and still hang on to life, most don't make it. A recent study estimates that only one seed in 1.2 million, or the combined production of nearly 20 agaves, results in a mature plant. It would be a prodigal sacrifice indeed, were it not for the fact that the agave also produces offshoots with a higher survival rate. The offshoots are clones without evolutionary potential. Seed production is a hedge against environmental changes.

The way the agave accomplishes this killingly rapid growth comes back to water: almost every drop stored in the leaves is drained to supply the stalk and flowers. The transfer is unmistakable: the green leaves become progressively bleached, wrinkled and dehydrated. The water lost is almost exactly balanced by the amount stored and spent (in transpiration) by the stalk and floral branches. Could we save our century plants by generous watering? Apparently not. They are just not capable of absorbing enough to keep up with flowering or photosynthesizing fast enough to nourish the growing stalk. They must draw on their own reserves.

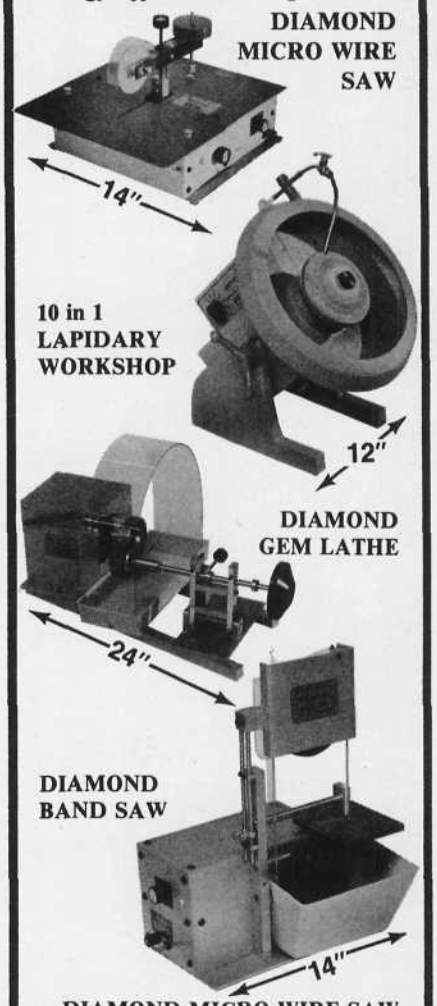
Succulents are efficient water users but contrary to oft-told tales they do not yield their stored supplies to quench thirst. Barrel cacti in particular are thought to be hidden reservoirs and are frequently mutilated by the curious or desperate, but the flesh is so slimy and acrid that it is about as palatable as sea water. Some agaves are mildly poisonous and burn the mouth when eaten raw.

Agave is just one of hundreds of plant and animal species able to meet the challenge of the desert. The Living Desert Reserve is a perfect place to see and learn about them in all of their marvelous variety.

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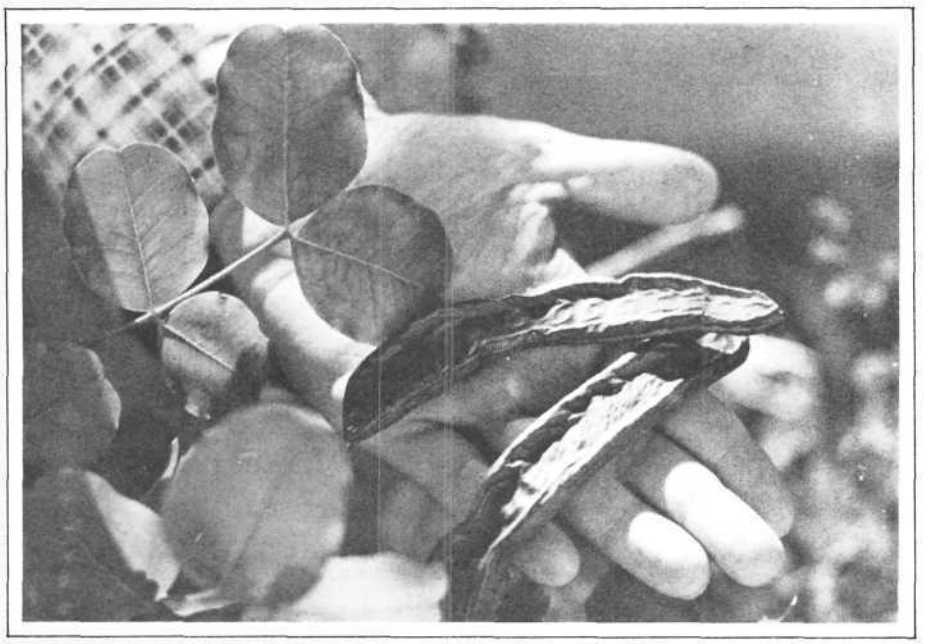
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Carob: The Candy from Galilee

by Chris Nyerges



WHEN JOHN the Baptist set out into the desert wilderness 2,000 years ago, he had no way of knowing that, centuries later, men would call a tree by his name. It was a situation of circumstance: John ate the brown, leathery fruit to sustain himself; apparently, it was all that was readily available.

Today we call a large evergreen tree, native to the Mediterranean coasts, St. John's Bread or carob, the latter name, more common in the U.S., coming from the Arabic *kharrubah,* meaning bean or carob pod.

Carob was common in the forests of Galilee, and appears as a shrub when growing wild and unpruned in the deserts of both the Old and the New Worlds. The brown, leathery fruits of the carob tree are about six to 10 inches long, about an inch wide, and up to a half-inch thick. The fruit is incredibly sweet, soft and moist when at its peak of maturity, which is usually in summer.

Carob is valuable as a survival food because it does not fall and rot as do many other fruits. Rather, unless knocked down, the carob pod remains on the tree throughout the year. Although out of season carob pods are edible and could certainly sustain life, they lack the high natural sugar content and moisture of the fresh, ripe pods.

Carob is often observed in the desert or semi-wilderness areas of the southwest United States, but is more common as an ornamental street and park tree. At close quarters, some view it as an irritation: the blooming flowers perfume the air with the aroma of manure, and fallen pods can litter the street below. The roots of this massive foreign invader break and crack sidewalks, causing old women to trip and young children to fall from their scooters and bicycles.

Ripe carob pods can be picked off the tree or the ground, wiped clean and eaten. Your first tentative bite will reveal a harder texture than expected, which gives way to a chewy, soft consistency that is richly sweet and filling. The seeds, hard enough to chip a tooth, should be discarded.

Carob is a storehouse of vitamins and minerals. It contains, according to the U. S. Department of Agriculture, 352 mg. of calcium per 100 grams: milk, by comparison, contains only 120 to 130 mg. Carob pods are about four percent protein and 76 percent carbohydrates. Carob also contains phosphorus (81 mg. per 100 grams), and smaller amounts of sodium and iron. The pod itself is rich in the A and B vitamins and other minerals.

Some people eat carob because their bodies are allergic to chocolate, so it's of interest how these sweets differ. Carob contains only traces of theobromine, the active stimulant in chocolate and cocoa, and it has no caffein. In the raw state, chocolate is bitter, thus necessitating the addition of much sugar to render it palatable. Carob, on the other hand, is nearly 50 percent natural sugar when at its ripest. A 1973 university study indicated that children who were allergic to chocolate could safely eat carob.

The dried ground carob pods can be used in a variety of recipes. Its versatility is strikingly evident when you realize that carob powder can be used as a flour replacement, sugar replacement, chocolate and cocoa replacement, and has other uses as well.

Preparing Carob Flour

If you wish to process the pods yourself, here's how to do it. Collect only the best looking pods; black blotches on the pods can indicate insect infestation or molding. Granular insides also may indicate insect infestation. Collect full-sized, mature, glossy brown pods for best results.

The easiest way to remove the seeds is to use a pair of pliers and squeeze the pod along its entire length, so that all the seeds fall out. This also eliminates excess moisture. Put the now broken-up and de-seeded pods on a cookie tray and place in your oven or food dryer.

The heat from the pilot light in a gas oven will remove enough moisture in 24 hours to allow you to coarsely grind the pods in your stone grinder. Once coarsely ground, dry again in the oven as before and regrind, this time at a finer setting. This dry and grind process is usually repeated three or four times—just keep it up until your flour reaches the desired consistency.



20-MULE TEAM DAYS IN DEATH VALLEY *by Harold O. Weight.* Specialists and critics praise this account of the great borax wagons of the 1880s, the drivers and mules, the trail to Mojave. Story of Borax Smith, Wm. T. Coleman, Death Valley pioneers, Harmony Borax Works. First-hand stories. Includes reprint of Henry G. Hawks' report on Death Valley 1883. Pb., 48 pgs., 33 historic and modern photos, map. 5th ed. $1.00.

CHILI LOVERS' COOKBOOK *compiled by Al and Mildred Fischer.* Two cookbooks in one. The first portion describes the best of chili cookery, from mild to fiery, with recipes for some of the best. The second part gives a variety of taste-tempting foods made from chili peppers with many suggestions on use and preparation. Spiral bound. Pb., 128 pgs. $3.00.

SCOTTY'S CASTLE *by Dorothy Shally and William Bolton.* The sumptuousness of the castle, its history, construction, and design of the buildings are told by the authors, both National Park Service employees who have been associated with the maintenance and interpretation of the property since the government acquired title in 1970. Pb., large format, profusely illus., $2.00.

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HIGH MOUNTAINS AND DEEP VALLEYS *by Lew and Ginny Clark, with photographs by Edwin C. Rockwell.* A history and general guide book to the vast lands east of the High Sierra, south of the Comstock Lode, north of the Mojave Desert, and west of Death Valley, by oldtimers who know the area. Pb., 192 pgs., 250 photographs, and many maps. $6.95

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Cooking With Carob

To replace cocoa with your carob powder, use as much of it as the recipe calls for cocoa. To replace chocolate with carob, use approximately three tablespoons of carob powder for each square of chocolate.

Carob can be used as a sugar replacement in virtually all bread and pastry products. If you find chocolate-brown colored waffles or pie crusts undesirable, you can mix various amounts of carob, honey and molasses to taste, instead of using white sugar. The homemade carob flour can also be used as a flour substitute, though it may result in a flat bread. You might want to mix carob flour half and half with another flour such as wheat, corn, rice or even acorn. The flavor of carob makes it a favorite in shakes, malts, carob-nut bars—even in baked beans and barbecue sauces.

If you buy carob powder in bulk to avoid the tedious processing, then read the label. Many so called "carob flours" contain sucrose as the primary ingredient, and some also contain chocolate.

Commercial carob is grown in the American southwest by grafting onto Mediterranean root stock, producing a superior fruit which is bigger and easier to grind. Carob trees are either male or female, and only the female trees produce fruit. For proper pollination, each acre of a carob plantation needs two or three male trees.

The few ranchers who have tried to produce commercial amounts of domestic carob have not been able to meet the price of the cheaper (and superior) imported carob. Also, these growers have had to deal with their own economics: it takes up to 12 years before the trees will produce commercial quality fruit. The one man who almost got a large scale plantation going in Riverside County, California, had his property taken away by means of "eminent domain" for a public water project. Much of what could have been Lawrence Holmes' successful carob ranch today lies under Lake Mathews.

Honey Carob Brownies

1 cup wheat flour
1 tsp. baking powder
1/4 tsp. salt
1/2 cup butter
1/2 cup carob powder
1 cup honey
2 eggs
1/2 cup chopped walnuts

Sift together flour, baking powder and salt. Melt butter in a small pan over low heat. Add carob powder and honey and blend well, removing from heat. In a mixing bowl, beat eggs and gradually add carob mixture. Add dry ingredients and mix well. Blend in vanilla and nuts. Pour into an oiled 8-inch square pan and bake at 300 degrees for about 40 minutes or until done.

Christopher's Acorn Bread

1 cup acorn flour
1/2 cup wheat flour
1/2 cup carob flour
3 tsp. baking powder
1 tsp. salt
3 Tbs. honey
1 egg
1 cup milk
3 Tbs. butter or oil

Blend all ingredients and bake approximately 30 minutes (or until done) in a 300 degree oven. Nuts and raisins can be added. This can also be baked over the coals of a campfire by putting the batter in a flat pan and inverting a larger pan over it, creating an oven effect. By adding more milk to this batter, you can use it to make pancakes.

Carob Cake

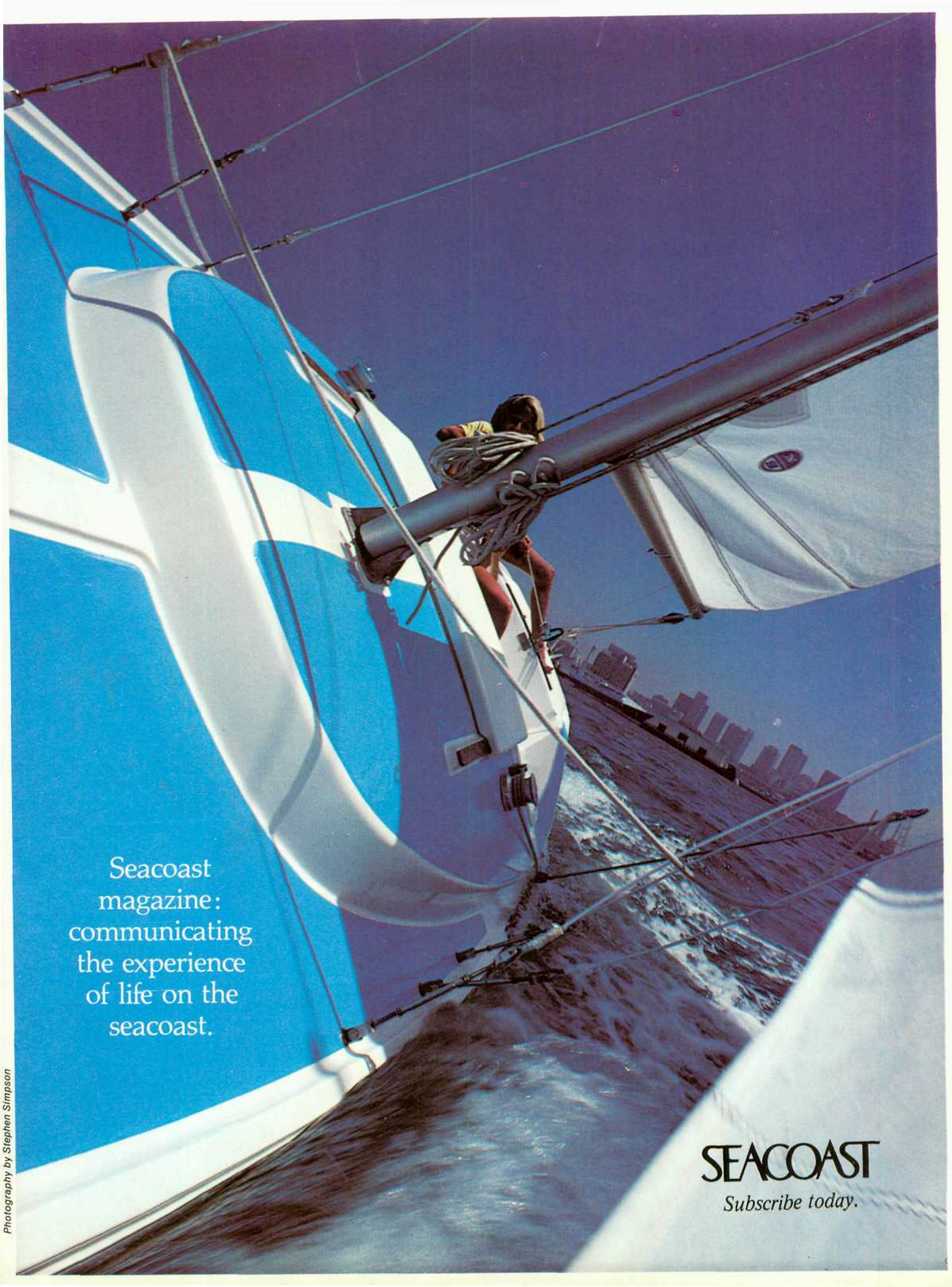
1/2 cup raw butter
1/2 cup honey
1/2 cup blackstrap molasses
1 egg
1/8 tsp. salt
1/2 tsp. cinnamon
1 tsp. baking soda
1/3 cup carob powder
2 cups whole wheat flour
3/4 cup hot water
1 cup chopped walnuts

Beat the butter, honey and molasses. Add egg and beat. Sift dry ingredients into the bowl, alternating with hot water. Stir in walnuts. Pour into a lightly buttered 9 by 9 inch pan. Bake in an oven preheated at 250 degrees for approximately one hour, or until the cake easily separates from the side of the pan.

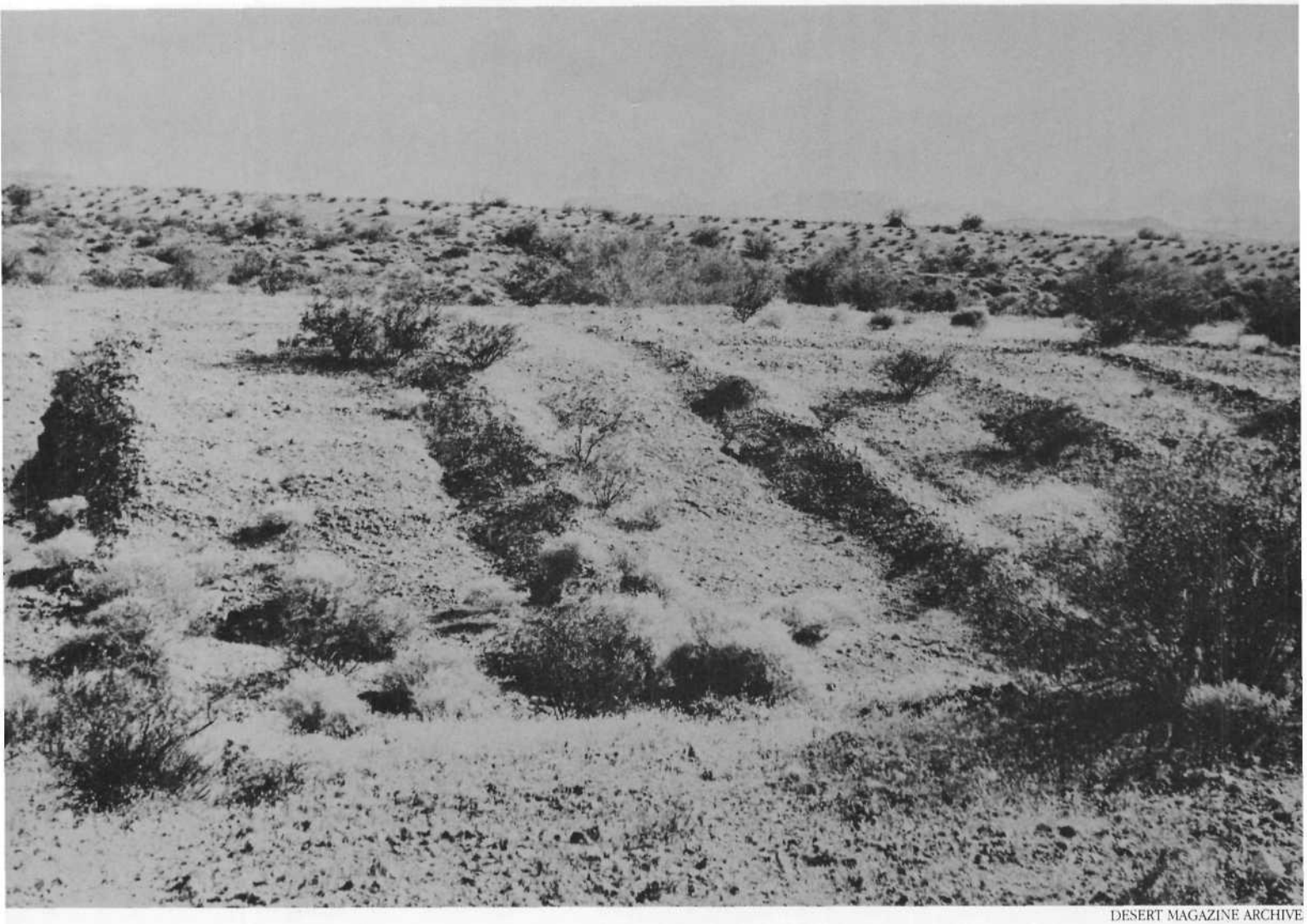
Carob Frosting

2 Tbs. butter
2/3 cup powdered milk
1/3 cup carob powder
1/4 cup honey
4 Tbs. raw cream
1 tsp. vanilla

Cream butter, powdered milk and carob powder. Add honey and cream, mix well. Add vanilla and whip until smooth.



Photography by Stephen Simpson



DESERT MAGAZINE ARCHIVE

Was our desert home to a pre-Columbian people from across the Atlantic?

Tracks in the Sand

by Choral Pepper

WITH RELICS of Viking ships [*Desert,* November 1980] and Roman artifacts [*Desert,* December 1980] adrift in desert sands, pre-Columbian traffic may have been more cosmopolitan in the southwest than history books reveal. Whether the vikings preceded the Romans or vice versa is a moot point. Both, it appears, left their signatures here. Not only did those seafarers challenge the great ocean that separated the American continent from their native lands, but a renowned oceanographer recently landed long enough to introduce evidence of even earlier peripatetic migrants from afar.

These mysterious windrows (above) on the east side of the Colorado River are typical evidence of non-native, pre-Columbian civilization in the American west.

When Willard Bascom invited my opinion of a petroglyph he had photographed on the Mohave desert some thirty miles west of the Colorado River, I was not impressed. It seemed crude compared to the objective peckings of spirals, lizards and horned animal figures characteristic of Indian petroglyphs in this desert region. Bascom, however, was not discouraged. Noted for his lectures and books on underwater archaeology, he has developed an uncanny sensitivity to primitive signs. Something about the direct simplicity of the pattern hammered into stone in its remote setting had a haunting effect upon him. Persisting, he next sought the opinion of Dr. Barry Fell, Professor Emeritus of Harvard University and an authority on ancient writings.

Dr. Fell was jubilant. The markings were exactly what he had been seeking

to close a gap in a migration pattern that traced an early Libyan trek from North Africa to North America. When translated, the square Numidian script of the petroglyph became a directional signal left by a preceding party of explorers to advise those who followed to take water from an adjacent spring and hasten back to the Colorado River, as nothing but desolate desert lay ahead.

It is Dr. Fell's opinion that these early travelers were the ancestors of the Zuni Indians, whose language has roots in ancient Libya. Perhaps it was this very warning that discouraged them from establishing their culture in California rather than New Mexico.

In his recent book, *Saga America,** Dr. Fell admits that when he first encountered signs of a prehistoric Libyan migration to this continent, he and the linguists working with him were in such dread of ridicule from "authorities" steeped in traditional teachings that they held back their findings until it appeared to be self-defeating. When they finally did let the word quietly out, evidence from archaeological sleuths such as the photograph from Bascom and others of the same vintage sent from Nevada, California and Arizona began to fill gaps in a mystery so profound that it may be generations before the full story unfolds.

Informed amateurs are destined to play an important role in this unfolding. Those of us who poke around remote places on the desert are the most likely to come upon these ancient signs.

Until very recently, even the informed among us classified most "Indian" petroglyphs chiseled into canyon walls and boulders as either curvilinear or rectilinear signs designed by their primitive makers to induce hunting magic. The exciting findings of Dr. Fell suggest that many of these so-called natives were seasoned travelers from distant lands, attempting to establish an advanced civilization in the New World long before Columbus, or even the Norseman, Leif Erikkson, was born.

Sites such as Grapevine Canyon near the Colorado River on the Nevada-California border, where figures are repetitive and cover a large area, were used for teaching navigation, astronomy and tribal history, along with communicating pragmatic signals of warning against snakes and scorpions. Photos of this site and many others were taken by Dr. Fell to Libya, where scholars of antiquity in the university there translated them and established their origin. In one photo of a site in California's Inyo County, where petroglyphs depict the constellations arranged in the order through which the sun passes along them, they recognized an exact duplicate of a stone tablet of Libyo-Egyptian origin. The ram figure for Aries, the claws of a scorpion for Scorpio, the bow for Sagittarius, the whale for Pisces and the other ancient planetary designations we formerly considered primitive hunting doodles are easily discernible.

Only within the last few years have American scholars researched the ancient Numidian script of Libya so evident in petroglyphs not only in the southwest, but along the Mississippi River and its tributaries near the mouth of the Gulf of Mexico. Most of these consist of signpost warnings, monuments, memorials, autographs and gravestones in character with the example photographed by Willard Bascom on the Mohave desert.

So who were these wanderers, these Libyans? When and why did they come to our shores, before America was even believed known to exist?

SINCE LATE paleolithic times, North Africa and parts of the Sahara desert were inhabited by a light-skinned people called *Libyans* by the Greeks and *Barbari,* or foreigners, by the Romans because of their difference from black-skinned natives. *Barbari* ultimately became corrupted to Berber. From where these people originated remains one of the great mysteries of African history. Carvings of bearded huntsmen carrying spears and throwsticks while they stalked beasts of the Libyan desert have been found in Egypt, which suggests that some of the earliest Pharaohs may have been Libyan chieftains. Fiercely independent, they became overlords of the Sahara's arid mountains and deserts, always on the move from one oasis to the next, staying in each only long enough to grow a crop of grain and breed their sheep and goats. Their main wealth came from produce, which they traded variously with the Phoenicians, Greeks, Egyptians, Persians, Romans, Vandals and Byzantines who paraded through North Africa's history. Although some Libyans were employed to man merchant and war galleys of the Carthaginians, their usual tendency was to escape the tumult of war by hiding out in small groups in the desert until a victor had been established to provide a steady market for their trade.

Could a group of Libyans manning a Phoenician merchant galley have been carried to the east coast of South America or even North America by a storm at sea? Herodotus suggests that this could have happened. Taking his information from Carthaginian sources, this 5th Century Greek historian, known as the father of history, wrote of Punic traders around 470 B.C. who led settlers on a voyage of colonization along Africa's Atlantic coast to consolidate their gold trade. Some interpretations of this epic go so far as to relate that these early mariners were not making an initial voyage into strange seas, but were sailing according to previous instructions. Inscriptions found in Brazil and written in Phoenician script reinforce this possibility. Libyan navigational information chiseled into rock surfaces in Nevada enhances it further.

The lower Colorado River and its desert environs would not have intimidated a wanderer of Libyan heritage. He would have felt quite at home.

Dr. Fell projects, on the basis of a series of nautical charts photographed at Nevada petroglyph sites and analyzed by Libyan scholars in Libya, that the Libyans' arrivals had to be prior to A.D. 1250 at the latest and possibly began prior to 250 B.C., when Libyan galley slaves sailed the high seas with their Carthaginian captors to export lumber, gold and furs.

I cannot resist applying Dr. Fell's Libyan theory to two remarkable sites that have haunted my psyche much as the Mohave desert inscription played upon Willard Bascom's. The first is a huge pictograph painted upon the wall of a canyon in Utah's Land of Standing Rocks. It depicts a majestic bearded figure surrounded by a bevy of black-draped shrouds. The beard is depicted by four ziggy parallel lines, running from large, empty eyes down to the waist. The long figures are roughly vee-shaped, with arms and legs wrapped in their shrouds. I had always thought the mural resembled a Moslem with his veiled harem until I happened upon an Egyptian king's mummiform in a museum. It could have been a model for the ancient mural in the Utah canyon—a pharaoh prepared for burial far from home, accompanied in death by his smaller-sized attendants. Islam invaded Libya in A.D. 646 and proceeded to dominate the Mediterra-

*Times Books, New York, 1980

Dr. Fell is confident that countless clues of early Libyan civilizations remain undisturbed on the desert.

nean from A.D. 700 onward. Is it possible that a fleet of escaping Libyans could have reached America then, or even earlier, around 325 B.C., with a related Egyptian king whom they commemorated on the canyon wall?

The second engima related to a site that Dr. Fell has not yet explored. However, the horticultural practices of a nomadic desert culture such as that of the Libyans could apply to a gigantic range of windrows scraped into the hard, rocky earth on the Arizona side of the Colorado River, south of Topoc.

The discovery of the first of these maze-like scrapings that covered more than 10 acres of ground achieved *cause célèbre* in the 1950s when the city of Needles applied for an historical marker from the California Highway Department to commemorate what was believed to be a prehistoric Indian site on the California side of the river. The application was denied. Unlike a site endowed with a marker at nearby Blythe, where giant intaglios of relatively recent Indian origin were scraped into the desert, there was no precedent for the Needles maze of windrows. Those who bestow such honors are suspect of a site that has no precedent in accepted history texts.

At that time, the only verification of authenticity that Needles old-timers could conjure was having witnessed a tribal ceremony in which local Indians made running forays through the maze, allegedly designed to lure evil spirits into a trap. Whether the contemporary Indians had created the traps or began running through them just because they were there, even the Indians couldn't answer. At any rate, a good part of the maze had been destroyed in 1891, when the Santa Fe Railroad constructed a bridge across the Colorado River, and more had disappeared with the subsequent building of the highway. It was only a few remaining portions that the frustrated citizens were trying to preserve.

I read of their futile attempt in an old newspaper clipping. I hastened to Needles to hire a pilot to take me up in his small plane, so that I could photograph any remaining segments for the *Desert* Magazine file. When the pilot learned what I was after, he nosed his plane to the Arizona side of the river instead. The mazes on the Needles side had entirely disappeared, he informed me, but one day while flying when the sun was low, he had detected a vast area shadowed with windrows on the Arizona side. Until then, he had flown over it for 20 years without ever noticing it. Had he not known exactly what to look for and where, we would never have found the huge circular maze scraped out of stark desert that soon appeared below us.

Estimated from our 2,000-foot altitude, it covered a diameter of approximately one-half mile. One broad wash and several smaller ones cut through it, but on each side of the washes, the concentric lines continued uninterrupted. How aborigines could have achieved a design of such magnitude in the hard, rocky terrain seemed inconceivable, but there it was. The ridges were not all of uniform distance apart, especially where they converged one into the other, so it could not have been achieved with mechanical equipment.

Some areas were less rocky than others, and here the windrows showed distinctly because sun-darkened rocks scraped from the light-toned earth accented them. In rockier areas, though, where gravel extended deeper under the surface, exposed rocks between the windrows also had darkened and the pattern was indistinct, unless you were close enough to detect the difference in contour.

Desert varnish (the brown coating) that covered the upper surfaces of the rocks that formed the windrows was the only clue to age. According to Professor Blackwelder of Stanford University, the climate in the area has not changed for 600 years. It is thus reasonably safe to assume that the covering of desert varnish on the exposed sides of the rocks that form the windrows developed over a period prior to that.

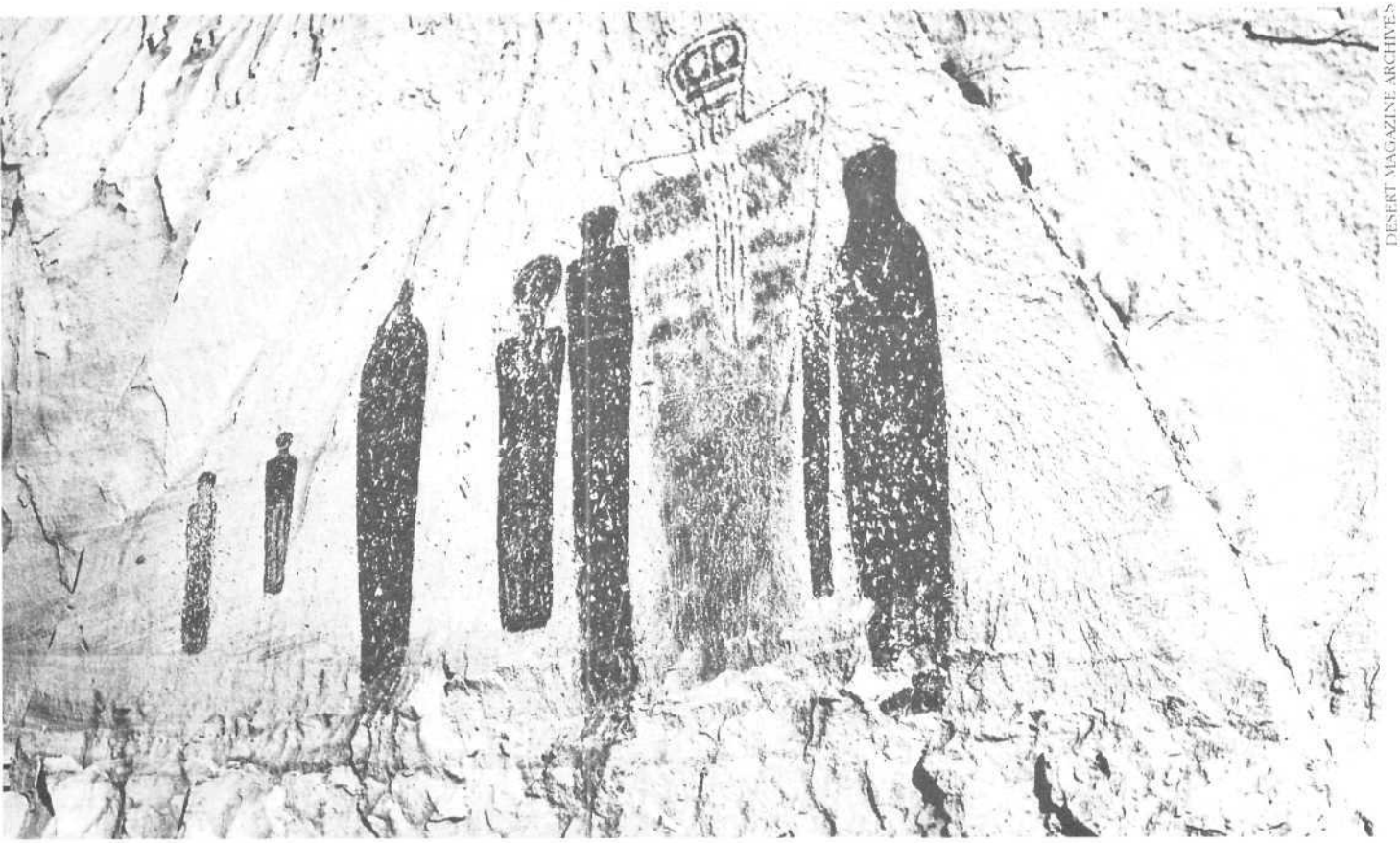
There may not be acknowledged precedents for this particular prehistoric wonder, but similar earthen ridges engineered with geometric precision by pre-Columbian aborigines in South America have been recognized. Aerial photographs taken over the sparse, seasonally flooded fields of northern Columbia in the San Jorge River district have turned up intricate clay corrugations standing out in bold relief that were overlooked even by the Spanish when they first arrived. Ridge designs at that location stand several feet high and extend for more than a mile. Some run at right angles to the several rivers in the area, others form checkerboard patterns; still others appear to have no orientation to the river banks.

It is believed that an unknown people built the washboard-like windrows, possibly more than 1,000 years ago, using only the crudest of implements. Their motive remains a mystery, although some authorities speculate that the shallow channels lying between the ridges may have carried water to or from grain or root crops grown on top of the mounds. Carbon-14 dating of a shell mound nearby reveals a culture that goes back to 3090 B.C. Even though the site lies on a well-traveled air route, as does the Arizona site, it had not been noticed until the late 1960s.

ONE OF the wonders of the desert is that its tracks remain preserved for millenia, almost as fresh as the day they were made, unless they lie in the path of floods, sand dunes or man. Before Hoover Dam, the Colorado river flooded seasonally. The channel frequently jumped its banks and changed courses. Could Libyan adventurers actually have carried on their hereditary seasonal harvests here as they roamed the deserts of the New World?

Shortly after this discovery, I wrote about it in *Desert* Magazine. Revealing letters from readers argued the origin of the windrow maze pro and con. Some related it to the so-called Topoc maze made by mechanical scrapers during the construction of the present bridge. Arda Haenszel, a teacher and archaeological reporter for the San Bernardino County Museum, blew that theory by sending me actual photos of the Topoc maze taken by her father, an early physician in the area. They were not the same, nor was the maze we had discovered located near enough to the highway or any other development of modern civilization to provide ingress and egress for mechanical equipment.

Arda Haenszel's most important contribution, however, was an awareness of similar sites to the north along the Colorado that had attracted the attention of her father when he practiced



DESERT MAGAZINE ARCHIVES

Author Pepper theorizes this pictograph depicts an ancient pharaoh prepared for death far from home, accompanied by his smaller attendants.

medicine at Searchlight, Nevada in the 1920s. He had photographed them as well, and they were subsequently mapped and recorded by the Museum staff.

Dr. Fell is confident that countless clues of early Libyan civilizations remain undisturbed on the desert, where little exploratory work has been accomplished. Hundreds of Cartheginian, Iberian, Greek, Roman and Libyan-Arabic coins have been found across the United States, all used for trade by Libyans. Replicas of them are typical of many Nevada and California petroglyphs sites. Twenty-five percent of these coins have been plowed up on farmlands, with an equal percentage cast upon beaches. Foundation diggings have produced another 15 percent, while stream beds and well diggings have brought up only five percent each, which may explain why so few have been found as yet on the arid desert.

In addition to rock art and coins, Dr. Fell is further struck by the similarity of cliff dwellings at Montezuma's Castle and Mesa Verde National Park to cliff dwellings of early North African peoples. Ceramic bowls, made without use of a potter's wheel and bearing identical designs, are also characteristic of both cultures. The sophisticated navigational maps chiseled into stone in Nevada, he believes, were rendered first on hides or parchment which still may lie preserved in dry desert sands. It is his further belief that the advanced civilization introduced to the Americas by these people, who disappeared without a trace, faded into oblivion just as all knowledge did in Europe during the Dark Ages.

All desert petroglyphs, of course, are not of the same vintage or origin. However, once you become familiar with the Libyan Numidian Arabic and Kufic Arabic scripts most typical of those in the southwest, you quite easily discern the difference between old and new.

For a starter, grid designs often mistaken for prehistoric gaming boards have been identified by Libyan scholars of ancient Arabic calligraphy as serving the mathematical purpose of an abacus. The dots associated with them totaled accounts. Map dots joined by lines, however, indicate island arcs, while a horizontal series of dots ending with a small circle (sun) indicate the meridian of the day, or zero longitude. A horizontal, serpentine line on a map-type petroglyph, often mistaken for a snake, is the sign for the sea, unless the upward projections are sharply pointed to form the sign for mountains. When these same signs are vertical, their meaning changes. Land boundaries are identified by a series of rectangles or squares.

A bone-shaped pattern, like an ingot, represents money. A circle with a dot inside depicts a man's chest. When the circle encloses a cross, it signifies his warshield. A thick circle represents a man, sometimes with a stick-like body attached to it, and there are endless variations of the above, to say nothing of markings that comprise the Arabic alphabet and spell out entire messages.

A similarity that has struck me in petroglyphs around the world is a predilection for handprints. I had never before associated the ones in the southwest with the hand of Fatima, but the recurring sign was as prominent a symbol in early Carthage as it later became to followers of Islam and early southwest desert arrivals.

A pioneering role in future insights into world history, and the part our continent played in it, is up for grabs. All of us can participate. Desert explorations with a constructive goal are far more exciting than aimless wanderings, so please carry a camera, do not disturb sites by chalking or removing petroglyphic rocks, and follow these pages for further developments in solving prehistoric desert mysteries.

THE HOPI TRADITION

by Thomas Kavanagh and Mike Kabotie
Photographs by Jerry D. Jacka



Demetrius Lacapa of Polacca

Hopi children (opposite page) perform traditional dances during an Indian Day celebration at Second Mesa Day School.

SIXTY MILES north of Winslow, Arizona, strung like beads along Route 264, are the 13 Hopi villages. The Hopi people have lived in the Hopi Tutsqua (Hopi Lands) for at least 1,500 years, and their villages are some of the oldest residential sites in the continental United States. Old Oraibi has been occupied since early in the 12th Century, and many of the other villages are at least 300 years old.

The villages of today show striking contrasts between the old and the new. There are television antennas on houses centuries old, prayer-blessing feathers on pick-up trucks and Kachina spirits passing out Crackerjacks in the village plazas, the latter a practice frowned upon by some tradition-minded elders. But even these contrasts are in tune with Hopi traditions. A Hopi metaphor described the blending of cultures and traditions as a string made up of several different threads, each of which adds strength to the whole.

This metaphor has constant applications in Hopi life. The history of the Hopi is not the history of a single people, but is made up of separate strands, stories of the clans migrating across North America, claiming it for the Creator, and returning to the Center, *Tuuwanasavi,* the Hopi Tutsqua. Throughout these migrations, the Hisatsinom, the Ancient People, settled sometimes for a while and farmed, and then moved on. Their "footprints" are the now ruined villages scattered over the North American southwest: Kawestima (called in English Navajo National Monument), Kisiova (Mesa Verde), the now lost Palotkwapi, the Red City in the South, and thousands of other archeological sites.

When each of the clans reached the Center centuries ago, they petitioned for admittance to the villages already established. They were then asked what knowledge they had which could benefit the people, and add to the whole that is Hopi. Only after they proved their knowledge were they assigned farm lands and allowed to join the villages.

Some of these clans were warriors; they were assigned to for the defense of the Hopi Tutsqua. Both Mishongnovi on Second Mesa and the Tewa Village of Hano on First Mesa are such defender villages. (The Tewa of Hano are refugees from the Rio Grande Pueblos of New Mexico, who came to the Hopi Tutsqua after the 1680 Pueblo Revolt.) The Pumpkin Clan of Mishongnovi was one of the last clan groups to arrive, following the footsteps of the earlier groups, and so earned the position of historians. Other groups have a knowledge of the ways of the religious life, and form the core of the complex ceremonial system of the Hopi.

The Hopi word *kitsoki* for village implies more than simply a residential site. It includes the entire social structure of the village, the interrelationships between the people who live there and their mutual responsibilities. In a sense, it is the community of people that is important and not the place where they live. No matter where a Hopi may move—to another village or off the reservation—he retains ties to his own village and returns there to participate in its ceremonies.

Entire villages have changed sites without changing their internal relationships. Walpi, on First Mesa, moved at least twice before its final arrival at the top of the mesa in about 1690. Shongopavy, on Second Mesa, also moved to the top of that mesa at about the same time. In doing so, both of these villages sent off colonies which were named Sichomovi and Shipaulovi. Here again, the establishment of a new residential site did not disrupt the village organization; the people from these colonies return to the mother

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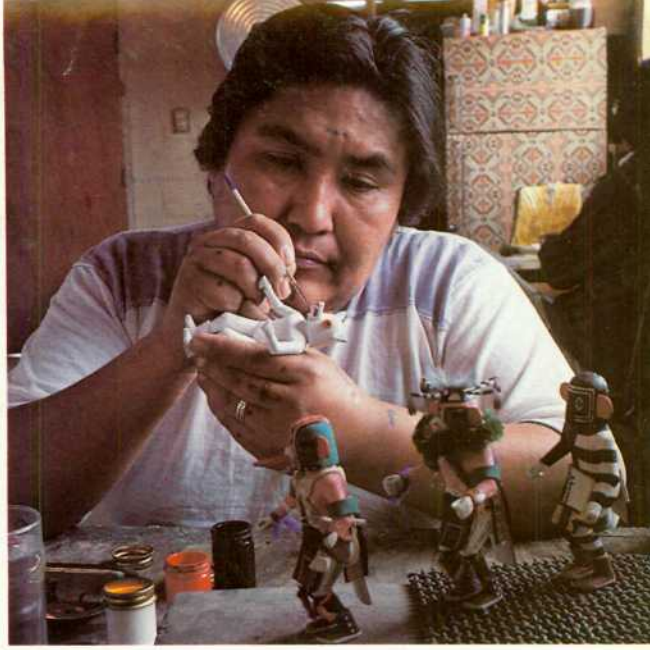


Clockwise from top left, Shipaulovi Village on Second Mesa; Sgt. Alfonso Sakevi of the Hopi police works for the Bureau of Indian Affairs; Nina Mae Wytewa uses juniper in her stove at Bacobi; Jackson Sekletstowa carves a Kachina doll; students prepare exhibits for the Cultural Center; Norma Ami grinds corn in her piki *house; Hopi pottery is traditionally formed by hand; ceremonial sweet corn is hung to dry; Patricia Lomawima (right) helps Carol Dawahoya prepare for a Butterfly Dance.*















The Hopi Baby-Naming Ceremony

Text and photographs by Jerry D. Jacka

ABOUT 60 miles north of Winslow, Arizona there is a place where time stands still. It is rich in history, with remnants of a culture centuries in the making.

The land is vast, with sandy plains framed by high plateaus. The cliffs are scribed with symbols pecked in the



Delaine Tootsie (with baby) holds ceremonial ear of Mother Corn. Grandmother offers sacred corn meal.

stone by the Anasazi, "The Ancient Ones," who lived and farmed in the area for more than 1,000 years.

The tops of three mesas in the area are dotted with stone villages which resemble those built by the Anasazi centuries ago. These are the pueblos of



Godmother traditionally shows infant, named Crow Boy at that moment, the sun for the first time.

their descendents, the Hopi Indians, a group of people who for 300 years have retained their rich and beautiful culture, despite disruptive pressures and influences exerted by the non-Indian world which surrounds them.

Today in the land of the Hopi, you can still see ancient ceremonies performed in the village plazas, and women using centuries-old techniques to make pottery and baskets. It is here that you can stand on the edge of a wind-blown mesa and look down on corn fields planted with nothing more than a simple digging stick and watered only with prayerfully beckoned summer showers.

The Hopi way of life dictates that man live in harmony with all things of nature. This is exemplified in their many ceremonies which incorporate symbols of the sun, moon, sky, clouds, rain and practically every living thing, including corn.

The use of corn and corn symbols seems to be omnipresent in Hopi ceremonies. This is better understood if we realize that nearly 2,000 years ago, the ability to grow corn allowed the once nomadic Indians of the southwest to settle down to a sedentary lifestyle with more permanent homes. This, in turn, allowed more time for cultural activities and the development of better lifestyles. So today, corn still has a very special meaning to the Hopi, even being symbolic of motherhood. And nowhere is the motherhood symbol of corn more obvious than during a baby-naming ceremony. Although not as colorful and spectacular as a Kachina dance, the naming of a baby is a warm, intimate and beautiful event.

Recently, in a small Hopi community, an infant boy was given his Hopi name during one of these ceremonies. On the morning of this special occasion, the sun had not yet risen. The darkness was punctuated by an orange flame of burning cedar and a few scattered street lights at Polacca, which is nestled below the ancient villages on top of First Mesa. This "almost modern" Hopi community slept, except for Elizabeth Tootsie, who kept watch over the fire through the night. In a house nearby, a young Hopi mother stirred restlessly as her 19-day-old son squirmed at her side. This was Elizabeth's grandson, who was to be named at sunrise, named in the Hopi way.

Elizabeth was cooking *pik'ami,* a pudding made of cornmeal, which must bake all night in a pit beneath a hot fire. While tending the fire, she was also preparing *nyoqwivi,* a stew of hominy and lamb. She had already spent almost two days baking bread in an outdoor oven and making *piki.* It was her responsibility to feed the guests on this very special occasion.

At midnight, Duane Farron Tootsie became 20 days old; old enough to receive his Hopi name. He and his mother, Delaine, had been confined to his grandmother's house since he was



After the ceremony, Crow Boy is given his first taste of solid food, a sampling of everything served.

brought home from the hospital. According to Hopi custom, the first-born should not see the light of day until he is 20 days old.

At the first finger of dawn, things began to happen at the Tootsie household. While Elizabeth retrieved



Crow Boy, otherwise known as Duane Farron Tootsie, became 20 days old on the day he was named.

the *pik'ami* from the pit, guests began to arrive at her home.

The infant boy became the center of attention, but he seemed more concerned with sleeping than participating in the events which were to follow.

At the beginning of the rite, the baby's godmother placed sacred cornmeal on the four walls of the room. This is symbolic of "building a house" for the child.

As the soft light of the new day filled the room, the infant was held in his godmother's lap for a ceremonial hair washing. His hair was washed with a special ear of corn, which is a symbol

of motherhood. The ear of corn was used as a brush to gently apply soap and water, first by his godmother, then his paternal grandmother and finally, by the remainder of the guests.

The beautiful Hopi infant remained calm throughout the hair washing, but loudly voiced his disapproval when he was given the ceremonial bath by his godmother. As she gently bathed the objecting baby, she softly whispered, "I know, I know, I'm sorry." After a few strokes with a towel warmed by a wood-burning stove, the baby resumed his peaceful nature.

The mother and child were reunited. As the mother sat with the baby in her arms, she was given the ear of "mother corn." Sacred cornmeal was placed in her hand and on the baby's forehead. The baby's godmother, speaking in Hopi, named the baby. Then one by one, guests removed cornmeal from a pottery bowl and placed it in the mother's hand and presented gifts to the baby. Fannie Nampeyo, the baby's great-grandmother, said a special Hopi prayer as she placed cornmeal in the mother's hand.

By now the sun had risen above the horizon. The godmother and the mother, carrying her child, followed a cornmeal trail out of the house to greet the sun. They faced the rising sun as the mother cast the sacred cornmeal before her. Then she spoke in Hopi to the sun: "Now, this is Angwushtiyo seeing the sun for the first time."

It was time to eat. Even the baby took part as his paternal grandmother touched a sampling of each kind of food to his lips. Then everyone enjoyed the feast of *pik'ami, nyoquivi, piki* and bread.

Since it is a Hopi custom to pay for anything which is received, the relatives on the father's side of the family would be repaid for taking part in the ceremony and bringing gifts. Elizabeth Tootsie had prepared well for this part of the ceremony. She had made extra bread and *piki,* ground corn into meal and purchased dry goods and food in order to fulfill her obligation. As the guests returned home that morning, the back of a pick-up truck was almost filled with the gifts they had received.

As the ceremony drew to a close, the infant slept in his mother's arms, quite oblivious to all that had taken place. But he did see the sun for the first time and he now had a Hopi name, Angwushtiyo . . . Crow Boy.

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village to participate in its major ceremonies.

The villages form the core of the traditional social, ceremonial and political life of the Hopi. Each village is an independent state, much like the city-states of ancient Greece. Traditionally, the villages are politically independent, and except for the mother village to colony relationship, are also ceremonially independent. Each village has a *Kikmongwi,* the Village Chief who is literally the "Chief of the Houses," and the *mongwit,* the council of clan and society chiefs. This council is not a governmental body, and has no political authority. It is responsible for the ceremonial and spiritual well-being of the people.

In light of the metaphor of the string, the Anglo-Americans are just the latest group to arrive at the Hopi Tutsqua, but the knowledge they bring is of a different kind.

When the white man first arrived at Hopi in the 1800s, it was thought that they might be the *Bahaana,* the Elder Brother, who went eastward during the migrations, and would return with a great technical knowledge. Although Americans have not proven themselves to be the Elder Brother, they are commonly referred to as *Bahaanam* (plural of *Bahaana*).

The villages of today show striking contrasts between the old and the new.

The *Bahaanam* have been in the Hopi Tutsqua for almost 100 years, and great changes have occurred in Hopi life because of their presence. There has been, and continues to be, a debate over how much of *Bahaana* ways should be woven into the fabric of Hopi life.

One of the changes has been the establishment of a tribal council, ideally made up of delegates from each of the villages. Some of the villages, however, refuse to send delegates to the council, claiming that it is simply a creation of the *Bahaana* government to dominate their lives. Others feel that although it is not traditional, it is one way to deal with the "outside."

Some of the villages have modified the traditional forms towards the *Bahaana* style. These villages have elected governors, and hold regular village meetings to discuss matters of importance to the village. Other villages have combined the two forms, and delegates to the tribal council must be certified by the *Kikmongwi* as being representatives of their village.

Other changes have included the coming of *Bahaana* forms of education. There are six elementary day schools on the reservation, but high school students must travel to Winslow, a daily round trip of 120 miles, or even further to one of the Bureau of Indian Affairs boarding schools. There are also plans to build a high school at Polacca, below First Mesa, which will be controlled by a Hopi School Board.

The establishment of this high school has required another application of the metaphor of the string—the combination of *Bahaana*-style classroom education with traditional Hopi teachings, and has raised the question of whether this combination is possible. Emory Sekaquaptewa, from the Third Mesa village of Hotevilla, and professor of anthropology at the University of Arizona, describes it this way:

As individuals, the Hopi people readily accept and understand the need for the white man's education, and they accept many of the white man's personal goals that education would help to bring. But as a society, the Hopi are concerned about the goals that are to be realized through the traditional cultural teachings. Each Hopi has to deal for himself with the question of whether these goals are consistent with one another, and if not, whether the two can be reconciled.

It is not easy to foresee the future, to be able to say whether the Hopi will become one of the many strands that make up the American people, or conversely, whether the *Bahaanam* in the Hopi Tutsqua will be woven into Hopi life. Either way one thing is certain; the Hopi villages will always be at the Center.

The Hopi villages are open to visitors except during certain ceremonial occasions. The villages request that visitors respect the Hopi traditions. No photographs, sketching or recording is permitted. If you do visit the Hopi Tutsqua, dress comfortably, but remember that the Hopi standards of proper dress are somewhat more restricted than those of most American tourists. Some of the villages have further visitor regulations that are posted at their entrances.

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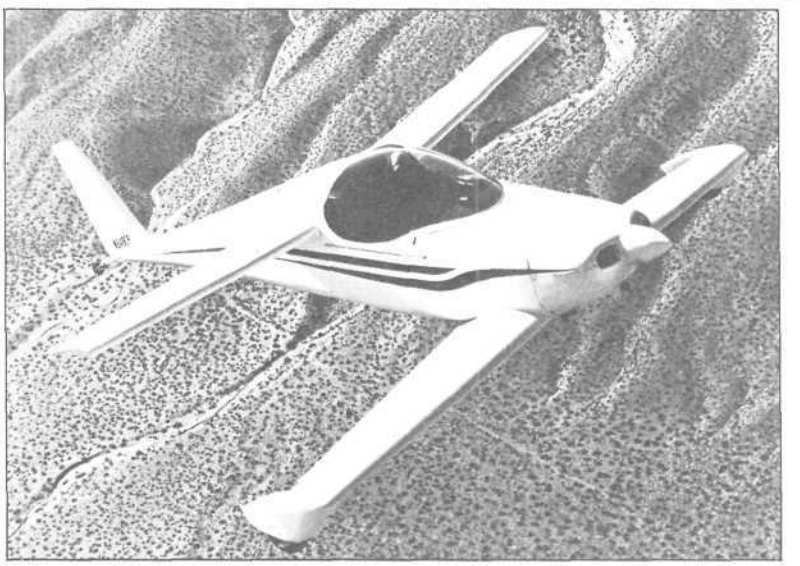
DOES UP TO 60 miles to the gallon at a cruising speed of 150 miles per hour make a weekend trip for two to a desert resort 700 to 1,000 miles away seem feasible? The answer must be a tentative yes, if the price for such a talented conveyance is right.

In terms of money ($9,595) it would seem to be; that's about what anything much larger than a minicar costs today and, of course, any car is limited to 55 mph. The only catches are that you must be able or willing to learn to fly, and have about 500 hours of your time and the reasonable expertise available to put together a kit. Given these, you become the owner of Quickie Aircraft's Q2 canard-configuration (anhedral forward wing) biplane, a unique design which pioneered flight with the Wright brothers at Kitty Hawk but has never until now been produced commercially.

There are about 90 Quickie Qs, an otherwise identical single-place plane, in use, and 170 Q2 two-place kits have been sold to date, of which two are flying in the few months since introduction. The requirement for licensing a kit plane design for unrestricted flight is that 51 percent of its content be home-built.

Quickie's marketing approach for the Q2 is to reach people who don't read flying magazines and who haven't, at least for a long while, given serious thought to flying, much less building, their own plane. The target is people who've been disinterested because of the high ($25,000 and up) first cost, the $140 a month hangar or tie-down fees and high fuel consumption. That could be you, for age is not a factor in acquiring a pilot's license, only reasonably good health.

Hangar fees can be avoided with Q2 ownership, because the plane is trailerable. It breaks just behind the cockpit to fold into two sections, a total of eight instead of 16 feet wide, dimensions that will also conform to a typical single-car garage. It can be conveniently constructed in a two-car garage, using commonly available hand tools.



Length
19 feet, 7 inches

Wingspan
16 feet, 8 inches

Wing area
67 square feet

Empty weight
475 pounds

Gross weight
1,000 pounds

Fuel capacity
20 gallons

Engine
Revmaster 2100-DQ

Horsepower
64 horsepower @ 3,200 rpm

Top speed
180 miles/hour

Fuel economy
Maximum cruise:
44 miles/gallon
Economy cruise:
60 miles/gallon

Takeoff distance
360 feet (750 pounds)
610 feet (1,000 pounds)

Landing distance
720 feet (750 pounds)
790 feet (1,000 pounds)

Rate of climb
1,200 feet/minute (750 pounds)
800 feet/minute (1,000 pounds)

Range
Maximum cruise: 682 miles
with 45 minutes reserve
Economy cruise: 1,020 miles
with 45 minute reserve

Minimum speed
61 miles/hour (750 pounds)
64 miles/hour (1,000 pounds)

Standard useful load
525 pounds

Construction is a fiberglass-over-foam sandwich, the foam pieces coming pre-formed. Working with fiberglass, while an unknown to most home craftsmen, is not difficult in this instance because the foam forms the molds. The kit is complete with every needed part, including the engine. All you add is paint and a battery. The foam, incidentally, is an effective insulator against both ground-level desert heat and the cold experienced at altitudes of 10,000 feet and above.

The standard engine is a 60-horsepower, four-cylinder Volkswagen, extensively modified by Revmaster and called by them their Model 2100-DQ. The possibility of offering optional Continental powerplants is being studied by Quickie but presently, mounts, cowling, exhaust system and instruments provided in the kit can be used only with the Revmaster.

Other optional equipment in the design stage includes an avionics package for instrument flying and a lighting kit for night flying. A complete information package on the Q2 is available for $10 from Quickie Aircraft Corporation, P.O. Box 786D, Mojave, CA 93501.

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PHOTO: CRANDALL, PASADENA

Why the Hopi Banned Photography

Ceremony, usually expressed in dance, is how Hopi communicate with their Creator. These ceremonies are sacred and private, for there is no intent to convert outsiders to the Hopi doctrine.

This rare old picture, taken around 1891 or 1892, shows an overflow of tourists awaiting the start of the ancient snake ceremony and dance at Wulapi. Some people have taken a vantage point atop the Sacred Rock, around which the ceremony centers, thus desecrating it. Commercial photographers with their cumbersome equipment stand at the left.

By 1910, this abuse had caused the Hopi to ban cameras on their reservation. Today, permits are issued to tourists, but pictures are restricted to the routine of daily life in the villages. Professional photographers known and trusted by individual chiefs or the tribal chairman are occasionally granted more intimate privileges.

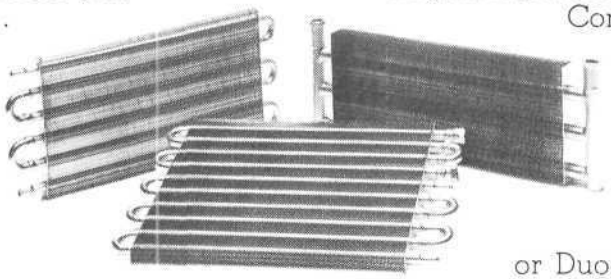
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